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The Future OF THE HOSPITALS OF LONDON.

BY SIR JAMES KINGSTON FOWLER, K.C.V.O., C.M.G., M.D. CAMB.

IT is stated in the Final Report of Lord Cave's Committee that in 1920 40 out of the 113 hospitals in the metropolitan area had a surplus and each of the remaining 73 a deficit. I hope to show how it may be possible for some at least of those in the latter category to join those in the former.

With the measures of immediate urgency necessary in order to meet the financial crisis which has arisen from temporary and well-understood conditions, I am not now concerned.

ANNUAL SUBSCRIPTIONS.

It is, I believe, generally accepted that the amount received from annual subscriptions forms "the backbone of hospital finance." I have before me a chart, begun in 1897 and continued up to 1921, which shows the income from annual subscriptions of all the London hospitals with medical schools, except St. Bartholomew's. This chart has to-day become a document of much interest and of great value. It is possible, almost from a glance at it, to differentiate four distinct types, which, so far as this single department of administrative effort is concerned, may be classified thus.

Analysis of the Chart.

1. In this class, which comprises eight out of the 11 hospitals, there is no evidence during the whole of this long period of any effort to increase the number of annual subscribers; in some cases the curve shows a slight rise, in others a steady decline is apparent. It is, however, only fair to state that as regards one of them there is evidence of a recent awakening. Let us hope that it will be of prolonged duration.

2. One hospital constitutes this class. For 16 years the curve shows a slight upward inclination, £2200 in 1897 having become £2822 in 1913. A new chairman then gets to work with the startling result that in 1917 £2822 has been increased to £10,351! At this hospital in 1921 there was no crisis, there was not even a deficit, but in its place a comfortable surplus!

3. One hospital starts in 1897 with an income of £11,000 from annual subscriptions, then follow some lean years, but by a vigorous appeal in 1903 the amount is raised in the next year to £16,400. It then, after two sharp rises, gradually declines in 1910 to £13,200 and again steadily rises to £16,780 in 1918. In 1921 the figure was £15,900. The result of these fluctuations is to produce an outline which reminds one of the peaks of the Himalayas. This is evidence of intermittent efforts which almost deserve the epithet "heroic." It was obviously impossible to maintain such efforts from year to year. Is it not clear that the burden was too heavy, and does it not suggest that in the future it should be lightened?

4. One hospital, but, alas, only one, shows a steady and almost continuous rise from £3600 in 1897 to £9609 in 1921. The rise would have been absolutely continuous, but for the diversion of energy needed to support a special appeal made at a festival dinner. From this appeal a very large addition to the funds of the hospital resulted, but in spite of this there was a temporary, but very slight, falling-off in the income derived from annual subscriptions with which, it may be well to repeat, we are now alone concerned. From this slight decline in the curve there is a lesson to be learned, but it is too obvious to need statement.

Inferences from the Chart.

The inferences which I suggest are to be drawn from the chart are as follows.

(*a*) That the policy of masterly inactivity, as regards obtaining new annual subscribers, accompanied doubtless by a hope that from some other source something would turn up, and the selling of stock or the issue of an appeal when the financial outlook was specially threatening, may in the past have sufficed to keep things going, but that such a policy is quite inadequate to meet the needs of to-day.

(*b*) That good organisation, hard work, and sustained effort are required from all concerned in hospital administration, if the number of annual subscribers is to be increased year by year, and that, in the long run, such a policy gives a better and more enduring result than intermittent periods of volcanic activity.

(*c*) That it is possible for a single individual, possessed of great energy and a clear vision, provided the load is not too great, to raise a hospital in a year or two from a financial morass to a high plateau of prosperity, but he will be wise if he takes all the steps necessary to ensure that his policy is continued when he is no longer at the head of affairs.

Having submitted the ideas contained in the scheme, which it is the object of this article to make known, to one who is competent to judge and having been told that the procedure recommended differs in no essential particular from the general methods which have been employed at the hospital referred to above under Class 2, I am disposed to think that it may be worthy of the consideration of those who are responsible for the management of the 73 hospitals which in 1920 showed an adverse balance in their accounts.

Patients' Contributions.

The suggestion to the patients that they should contribute something towards the cost of their maintenance in hospital has everywhere met with a generous response and this already very considerable source of income will undoubtedly increase from year to year. Is not this a sufficient reply to those who think that some sort of bribe is necessary in order to obtain money for the hospitals from the wage-earners? Surely they must have higher ideals than those who claim to know their minds, otherwise they would not so readily have recognised their duty to contribute according to their means towards the cost of their maintenance when in hospital.

I am sorry to have to correct the following very unfortunate mis-statement contained in the Final Report of Lord Cave's Committee (par. 38). "Some London hospitals, including the ....., the Middlesex, and ....., make a fixed charge (except in the case of poor people) *as a condition of admission* [the italics are my own], the charge for an in-patient being generally about 20*s.* a week and for an out-patient 6*d.* to 3*s.* per attendance, according to the nature of the case."

At the Middlesex Hospital each out-patient is asked for 6*d.* at each attendance, if he is willing to pay that sum. If he states that he is unable to pay anything at all, he is at once, and without further enquiry, given a "free ticket." No patient at the Middlesex Hospital has ever been charged any sum *as a condition of admission to the wards.* The procedure of admission to the wards is as follows: *After admission* the patient is visited by the lady almoner, who, from the patient's statements, fills in the "index card"—e.g., single; married; children; no children; weekly earnings, &c. Either the patient or the almoner suggests a sum payable weekly by the patient towards the cost of his maintenance. When they have come to an agreement that is the sum which becomes payable. If the patient states that he is unable to make any contribution at all he remains in the hospital free of any charge. No patient in a ward knows whether any other patient in the ward is paying part of the cost of his maintenance; nor does he know which patients, if any, are making no contribution at all. Moreover, the sister of the ward and the nurses are equally in ignorance of these facts; all patients are treated alike, whether they pay or do not pay.

SCHEME FOR THE FUTURE SUPPORT OF THE HOSPITALS OF LONDON.

Central Area.

1. That the whole of London now dealt with by King Edward's Hospital Fund be mapped out into *Spheres of Influence*, having relation to the existing hospitals or hospital groups.

2. That within its sphere of influence each hospital or group be advised to set up an organisation for the purpose of collecting money and that no neighbouring organisation be allowed to solicit support within that area.

3. That each hospital or group be free to accept voluntary gifts from any source apart from any question of the place of residence of the donor, or any other consideration.

4. That within its sphere of influence it should be the duty and interest of the organisation to create a local patriotism centred upon the hospitals. Such a local patriotism, but, of course, quite apart from the hospitals, exists in all large towns in the Provinces, but has hitherto been conspicuously absent in London.

5. That within its sphere the organisation should search out every possible source of voluntary gift, endeavouring especially to make such gifts annual.

6. That the sum annually collected within each of the central areas should be divided amongst the group of hospitals (where it is a group area) in accordance with any plan upon which they may mutually agree.

7. That, as at present, no hospital receiving support from King Edward's Fund be allowed to make a public appeal without previously submitting the scheme to the Council of the King's Fund and obtaining its approval.

8. That in the future every effort should continue to be made to compel the hospitals to recognise that their annual expenditure must be regulated, like that of any prudent individual or well-managed institution, by the income in sight, and that the King's Fund will continue its present policy and will not countenance expenditure upon buildings or extension of departments for the erection and maintenance of which there is no prospective income.

9. That the borough hospitals (late Poor-law infirmaries) should be developed as an integral part of the hospital system of London, and should be affiliated to the general hospitals of the area, to which they geographically belong.

10. That two important steps to attain this end would be (*a*) the appointment of a visiting staff (as in Marylebone), and (*b*) the appointment, as far as possible, on the resident staff of men educated at the medical school of the general hospital to which the borough hospital is affiliated.

11. When a system of transfer of patients from a general hospital to its affiliated borough hospital has been brought into operation, it would be possible to convert one or more of the ordinary wards of the general hospital into "diagnosis wards."

12. "Diagnosis wards" would be reserved for the diagnosis of obscure cases, a proceeding which with all the resources for the purpose possessed by a hospital well equipped with laboratories and all modern methods of recognising disease might take a few days, or a week or, of course, in some cases still longer. After the diagnosis has been arrived at the patient might be removed to one of the ordinary wards of the same hospital or, if the case was likely to require prolonged hospital treatment, to the affiliated borough hospital, where the treatment would be equally well carried on in a less expensively equipped hospital.

13. The number of patients passed through a diagnosis ward in a single year might easily be three times as many as it would have been had the ward been used as in the past, when it was supposed that hospitals existed solely for *the treatment of disease*, whereas in a very large number of cases the diagnosis is by far the more important factor in the case. It is not necessary to be a doctor to appreciate the fact that before the treatment is begun it is well to know what is the matter with the patient. In many cases, once the diagnosis is made, any competent practitioner can carry out the treatment recommended, whereas he might not have had at his disposal the means whereby alone an accurate diagnosis was rendered possible.

Application of the Scheme to the Outlying Areas.

1. That in areas upon the outskirts of London within which there may be no local hospital, or only a small cottage hospital, a voluntary hospital committee be set up, charged with the same duties as the organisations of the central area.

2. That the amounts collected by such committees be paid into a fund, to be called the Annual Fund, in order to distinguish it from King Edward's Hospital Fund and to indicate that its functions are fulfilled by annual payments to the hospitals. Such a fund should only retain a sum necessary for its working expenses. This annual fund should be managed by King Edward's Hospital Fund and distributed year by year upon a basis to be agreed upon.

3. It may happen that a resident in one of these outlying areas when appealed to for his support may say, "I don't see why I should be asked to subscribe to the hospitals, there is not one nearer here than three miles." He would be confronted with the fact that (say) 1000 in- and out-patients from his area made use of that hospital, distant more than three miles, during the last year, not to mention many who, for various reasons, attended at hospitals situated at a still greater distance. By the use of the card-index system, now almost universal at the hospitals, the place of residence of every patient is known and such figures could be produced without difficulty.

The Scheme in Being.

It must not be thought that this is a merely abstract and paper scheme, born of an active imagination, as in two cases, to one of which I have already alluded, it is in actual operation in London, and has been so for more than a year. The story of the results obtained in the second of these "spheres of influence" is very interesting. One lady canvasser, assisted by two part-time workers, one of whom has been engaged only six months, has obtained by personal visits more than £1000 in voluntary annual subscriptions and a considerable sum from collecting boxes. In addition, one large business firm within the area, with the complete accord of its employees, has decided to divert the sum of 1000 guineas, collected for a war memorial, which it was intended to erect within the house of business, in order in lieu thereof to endow a hospital bed, over which a suitable inscription will be placed. Only factories, places of business, and shops have been visited, no private residences have been included in this branch of the collecting department of the hospital. What a commentary this is on the contention that "mass-contributions" can only be looked for if some quid pro quo is offered!

The area of the borough in question so far covered comprises, as I am kindly informed by the Surveyor, about one-twelfth of the total area, excluding such parts as are not built upon. As the visitation of each street is finished a blue pencil mark is made along it on a map of the borough, so that it is easy to see at a glance how little has yet been done and how much labour still confronts the far too few workers now engaged in the search for support of the hospitals situated within this sphere of influence.

The lesson that these workers have learned is that "personal touch" is the secret of success. No printed or type-written circulars or letters are of any use, every letter, whether of solicitation or of thanks, must be written by hand and signed by someone in authority. An occasional visit from such a person connected with the hospital to express the thanks of the governing body "acts like a charm." All this does not seem to prove that the voluntary system is a failure!

If the needs of the hospitals are to be brought home to the people the facts must be taken to the homes of the people and to the places where they work.

CONCLUSIONS.

Spheres of Influence.

The principle of spheres of influence has been already accepted by King Edward's Hospital Fund. What is now necessary is for the Fund to appoint a committee to delimit these areas. Should there be any tendency to make exaggerated geographical claims in order to secure supporters, the impartial and quasi-judicial position of the King's Fund Committee would ensure an equitable decision.

A Hospital Map of London.

This map would constitute the report of the King's Fund Committee when their work was completed. It is urgently necessary, as it is the essence of this scheme, that every Londoner should know as soon as possible the number of his hospital area as well as he knows the number of the omnibus service which takes him to his daily work. I can see such a map on a hoarding with the "legend" beneath, "Which is *your* area? What have *you* done for the hospitals?"

The Voluntary System.

There are some people who appear to think that the voluntary system should be likened to a decrepit old man tottering to his grave; there are others, with whom I am in complete accord, some of them men who have spent their working lives in hospital administration and who alone are entitled to be heard on this subject, who picture the voluntary system as a healthy infant just learning what wonderful things it can do if it tries. It is for London to decide which policy shall prevail. Shall it be that which represents the former view, a policy of despair, or the latter, a policy which is an expression of a continued belief in the generosity of the people of London, whether they work with their brains or their hands?

Lettsomian Lectures

ON

AMŒBIC LIVER ABSCESS:

ITS PATHOLOGY, PREVENTION, AND CURE.

BY SIR LEONARD ROGERS, C.I.E., M.D., F.R.C.P. LOND., F.R.C.S. ENG., F.R.S., LIEUT.-COLONEL, I.M.S. (RET.)

LECTURE II.*—THE VARIETIES AND TREATMENT OF AMŒBIC LIVER ABSCESS.

IN the first lecture I dealt exclusively with the ætiology and pathology of amœbic liver abscesses; I now have to treat of the varieties and treatment of liver abscess, in which important life-saving advances have been made during the last two decades. Before passing on to the clinical side there are still some points derived from my experience as a pathologist which have a practical bearing on treatment, and I will first complete what I have still to say on the varieties of liver abscesses.

FORMS OF MULTIPLE LIVER ABSCESSES.

Davidson, in Allbutt's System of Medicine, divided suppurative hepatitis into the following classes: (1) pyæmic, now comparatively rare and forming only a part of a hopeless general infection with which I am not at present concerned; (2) porto-pyæmic or pylephlebitic, surprisingly rarely found complicating dysenteric ulceration of the bowel; (3) secondary pyoseptic, of which Davidson wrote: "It is always secondary to the opening—spontaneous or operative—of an abscess of the liver, and the consequent entrance of infective micro-organisms from without," an early and authoritative acknowledgment of the danger of septic infection of the large single tropical liver abscess, regarding which I shall speak presently; (4) tropical suppurative hepatitis, which is the large comparatively chronic amœbic abscess of present nomenclature; (5) suppurative cholangeitis with the formation of pus in the dilated intrahepatic bile-ducts, concerning which I have something to say, and have also to add a still rarer variety I met with in Calcutta.

Suppurative Cholangeitis.

I have been greatly interested in this rare disease ever since I met with three cases while demonstrator of pathology in my third year's studentship at St. Mary's Hospital, when I also collected and analysed 17 more cases in an unpublished paper read before the hospital medical society. Fourteen years later I recorded[5] a case I diagnosed and operated on at the Calcutta European Hospital, removing a mass of gall-stones from the hepatic ducts, but was a day too late, as unfortunately the suppuration proved to have already tracked up along the inferior vena cava and opened into a bronchus with fatal results. In reporting this case I included from memory all the essential data of my early study, and suggested that a history of obstructive jaundice due to gall-stones with fever and leucocytosis, but in which the jaundice decreased at the same time that the general symptoms grew worse, formed a combination of signs indicating suppuration in the bile-ducts loosening the stones and allowing the bile once more to escape past them into the bowel, and one which should lead to opening and draining the enormously dilated bile-ducts of such cases as the only chance of saving the patients—conclusions which have since been endorsed by the high authority of Sir Berkeley Moynihan in his work on Gall-stones and their Surgical Treatment.[6] This condition is, however, so rare in India that among nearly 5000 Calcutta post-mortem records I only found one probable case, which is explained by the fact that although gall-stones are nearly as common in India as in Europe, in the former country most of them were of the soft pigment variety, the hard disease-producing cholestisine form being comparatively uncommon in Calcutta, as I showed in a paper on gall-stones in the tropics.[7] Suppurative cholangeitis will, therefore, seldom give rise to difficulties in the differentiation of liver abscesses in the tropics on account of its great rarity and of the prolonged obstructive jaundice usually preceding it—a symptom which is not at all marked in the amœbic disease, except occasionally as the result of a large abscess bulging on the under surface of the right lobe of the liver pressing on the hepatic ducts, as in a case recorded by Moir in 1902,[8] and one reported in my Bowel Diseases in the Tropics, which I diagnosed during life, and verified post mortem.

Diffuse Suppurative Hepatitis Produced by B. Coli Communis.

The only case I have seen of this condition was in a Calcutta hospital patient with fever and acute hepatitis, in whom I found leucocytosis with over 90 per cent. of polynuclear leucocytes, which led me to express the opinion that it was not an amœbic hepatitis, in which I had never seen such a high polynuclear proportion, although I was at a loss to suggest its cause. I found post mortem a peculiar diffuse suppuration throughout the half of the liver supplied by the right branch of the portal vein, in which extensive clotting was present, while the remaining half of the organ was healthy. Cultures showed a pure growth of innumerable coli communis bacilli.

In all the foregoing varieties of multiple small liver abscesses the histories of the cases and the acuteness of the symptoms are quite different from those of the more insidiously forming large amœbic ones, while it is only the latter form usually which is amenable to surgical treatment. Further, I have already shown in the first lecture that multiple small amœbic abscesses are nearly always overshadowed clinically by the acute sloughing dysentery to which they are secondary, so they cannot as a rule be recognised during life and are also quite beyond the reach of surgical measures. The

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occasional cases of large acute, ragged, incompletely localised abscesses with minute ones around them are also usually beyond surgical relief, and the only hope lies in pushing the specific antiamœbic drug in the hope that the acuteness of the pathological process may be sufficiently controlled to allow of subsequent surgical interference having some chance of success. We may, therefore, now put on one side the small multiple variety and turn to the more hopeful large and comparatively chronic fibrous-walled form, including the cases with two or more such abscesses, and see what lessons the post-mortem room and the laboratory can teach us which will be of service in dealing with this formerly very common and fatal tropical disease.

Frequency of Single and of Several Large Amœbic Liver Abscesses.

In a series of 164 cases in 36 years' Calcutta post-mortem records, 52 per cent. of the cases were of single abscesses, while the case mortality used to be not less than 60 per cent., and we may safely assume that the vast majority of the 40 per cent. of recoveries were single abscesses, for it was quite exceptional for more than one liver abscess to be opened within a short time with recovery, although a few such cases are on record. The total proportion of single abscesses will therefore be 40 plus half the 60 per cent. of fatal cases, or a total of 70 per cent. Further, of the fatal single large abscesses, one-half showed post mortem some smaller abscesses, usually of the secondary septic type of Davidson's classification, while in the uncomplicated large single ones the fatalities commonly resulted from the long-continued exhausting discharges kept up by the almost inevitable bacterial infection of their cavities after the open operation in a damp germ-laden tropical climate, as I shall show immediately. Moreover, the fever accompanying the secondary infection makes it exceedingly difficult to detect the presence of a second large abscess after one has been drained, except rarely when it comes to the surface; this adds greatly to the seriousness of the disease, especially when it is being treated by the open operation. Out of 38 cases of more than one large abscess, post mortem two were found in 44·7 per cent., three in 26·3 per cent., four in 18·4 per cent., and over four in 10·6 per cent.

The Practical Importance of the Fibrous Limiting Wall of Large Amœbic Abscess.

I have already described the formation of a dense fibrous wall to large amœbic abscesses in the liver, and must now return to its practical importance. In friendly discussions with surgical colleagues I have frequently been told that the high mortality after the open operation was not due to secondary septic infection, but to the amount of destruction of the liver tissue; this I am convinced is not the case. In an instance where three medium-sized amœbic abscesses were found side by side with about one-third of an inch between each, it might have been wondered why they had not coalesced, in such a delicate organ as the liver, into one irregular cavity. The reason was at once clear on cutting sections of the intermediate tissue, when it was found to consist of a dense fibrous wall limiting each abscess, between which the liver tissue was absolutely healthy: a striking illustration of my point that once this fibrous wall has formed, as it does in nearly all such cases as come under the surgeon's knife or trocar, there is no further destruction of the liver tissue, at any rate as long as the abscess cavity remains free from bacteria. When septic organisms gain access after the abscess is opened and drained, I have seen bacterial infection spread through the fibrous wall and liver tissue to infect the peritoneum, and through the diaphragm to infect the pleura; more frequently, multiple secondary abscesses develop around the primary cavity. In connexion with the same case cited above, another point of interest was presented by the condition of the cæcum. At the post-mortem, when the large bowel was spread out for inspection, one of my medical colleagues remarked that he could not see any dysenteric ulceration to which the liver abscess could be secondary. I replied, "Wait a second," and on turning the cæcum inside out revealed the two small amœbic ulcers in this, the common site for them, as I have already shown.

In another case I found an immense abscess of the lower part of the right lobe of the liver extending down into the pelvis, which had ruptured into the peritoneal cavity, a somewhat rare occurrence, and I measured eight pints of typical liver abscess pus. Nevertheless, only the lower two inches of the right lobe of the liver had been destroyed, the fibrous wall having been gradually stretched to hold the pus until at length it gave way with rapidly fatal results. I have also twice seen six pints of pus aspirated from the liver, without drainage, at a single sitting, and yet complete recovery take place; if such amounts of pus do not destroy enough liver tissue to cause death, I should like to know how much is required, and why so many much smaller uncomplicated secondarily infected abscesses prove fatal after the open operation.

SECONDARY BACTERIAL INFECTION AFTER OPEN OPERATION.

It has long been recognised that tropical liver abscesses are often sterile as regards bacteria, although this important fact does not appear until recently to have much influenced the treatment of the disease. In no less than 75 (86 per cent.) of 87 cases I found the pus sterile when such abscesses were first opened, and in several more only one or two colonies developed, which might have been accidental contaminations, while in some cases in which only a few colonies developed in my culture-tubes of aspirated liver-abscess pus the patients made rapid and complete recoveries without any open operation, so that such slight bacterial infections may not be of any pathological importance or a bar to the simple method of treatment I am about to describe. On the other hand, on making cultures from the pus in the cavities or sinuses a few days after they had been opened and drained into dressings in the ordinary way, I almost invariably obtained innumerable cocci and bacteria, which is not surprising when we recall that such abscesses originally contain from one to four or more pints of blood-serum-like fluid, as fine a culture-medium as possible, and during the daily dressings air is sucked in and out with every breath, while in the damp hot-house air of the tropics it is impossible to open an upright flask of sterile broth for a single second without bacterial contamination occurring, so secondary infections are nearly inevitable in such climates, quite apart from the dangers of the copious discharges soaking through the dressings. It is worthy of note that during my long Calcutta experience the surgeon who obtained the best results by the open operation was one who, in discussing a paper [9] in which I drew attention to this danger, laid it down that such cases should always be dressed during the first few days after operation by the surgeon himself. Even large abscess cavities rapidly contract after being opened, and the later infection of the remaining sinuses usually only results in much delaying their healing, as I shall demonstrate presently, without submitting them to such a great strain from exhausting discharges as earlier bacterial infections do, while also much reducing the danger of secondary infections of the liver substance and surrounding tissues.

It is necessary to lay stress on these unfortunate secondary infections as I have not infrequently met with surgeons in India who denied their importance, although I could never get any of them to explain why they considered the secondary septic infection of a large abscess cavity in such a vital organ as the liver of little importance when they took such vast pains to prevent such occurrences in their general surgical work. Other surgeons have readily acknowledged the importance of this factor, and in order to show I do not exaggerate it will be well to quote the words of Major G. C. Spencer [10] when professor of surgery at the Royal Army Medical College, in reporting the successful use of the method of treating liver abscess I am about to advocate. He wrote: "The chief

cause of this high mortality, apart from the presence of more than one abscess, or extreme debility of the patient before operation, is undoubtedly the infection of the abscess cavity by pyogenic organisms through the open wound. This is extremely difficult to prevent, no matter how much care is taken: the large amount of viscid discharge necessitates frequent changes of dressings, air and pus are sucked in and out of the cavity by respiratory movements, and it is very difficult to keep the skin around the wound aseptic, especially in a hot moist climate. The great majority of amœbic abscesses are sterile when first opened, and every surgeon with Indian experience is familiar with the usual course of fatal cases—the patient does well for the first few days after operation, then infection occurs, the temperature goes up again, and death from septic poisoning slowly but surely follows." If such was the experience of a distinguished army surgeon dealing under favourable conditions with the comparatively early cases met with among European soldiers in India, how much more will it be the case in civil hospitals and dispensaries with very limited skilled assistance and finances dealing with advanced cases in greatly debilitated native patients?

Until recently we had no effective alternative treatment to obviate the necessity of opening these deep-seated abscesses, but enough has I think been said to prove that any simple method of preventing the deplorable results so graphically described in the above quotation will be worthy of serious attention, and I submit that the facts I have brought forward furnish a complete scientific basis for a much simpler and promising method, which, combined with improved medicinal measures, enables the problem to be satisfactorily solved.

TREATMENT OF AMŒBIC LIVER ABSCESS.

In 1828 Annesley advised only opening a liver abscess when it was pointing exteriorly and the skin over it had become discoloured, ensuring adhesions being present preventing any risk of the peritoneal cavity being opened, while trocars were often used in those days for tapping them. In 1871 Maclean pointed out that the death-rate was lowest in liver abscesses discharging through the lungs and highest in those escaping through the abdominal wall owing to the frequency of decomposition in the latter class through entry of the external air, the danger of which he laid much stress on, and he advocated removing the pus by means of Bowditch's syringe, originally designed for evacuating fluid from the pleura without the admission of air, and recorded a case in which a pint of pus was thus drawn off, while in 1886 he reported having frequently used the aspiration method with success, which by that time was in common use in India and elsewhere, although with the spread of antiseptic methods it was gradually replaced by the open operation owing to the frequent reaccumulation of the pus after even several aspirations in the absence of specific antiamœbic medicinal treatment—ipecacuanha not then having been advocated after an abscess had already formed as far as I have been able to ascertain, although it was given by Maclean and others in early hepatitis to prevent suppuration taking place, as will be shown further in my concluding lecture.

The Principles of Aseptic Treatment of Large Amœbic Abscesses.

Not many years ago, before our present views of the ætiology of tropical liver abscess were established, they were naturally looked on as ordinary septic collections of pus, which it was an axiom of surgery should be laid open and drained as early as possible, like those in other parts of the body. There was, however, one exception to this rule, and that a very important one from my present point of view. It was long ago recognised that opening the large cold tubercular abscesses connected with bone disease, such as caries of the spine, was only too often followed sooner or later by secondary septic infections of a most exhausting and frequently fatal nature, and as a result of this knowledge tubercular abscesses have for long been increasingly treated by aspiration through sound tissues, with or without the injection of antiseptic substances, but without allowing any air to enter the cavities. As soon as I was able to establish by the examination of a much larger series of cases than my predecessors that amœbæ were constantly present in the walls of tropical liver abscesses and that the great majority of them were primarily sterile as regards bacteria, I realised that collections of pus produced by a protozoal organism did not necessarily require the same treatment as those due to pyogenic bacteria, and I began to look for some chemical inimical to the amœba, which might safely be injected into such abscesses after removing as much of the pus as possible by aspiration. At that time irrigation of the large bowel by quinine solutions had been recommended in the treatment of amœbic dysentery, so I began testing the action of certain drugs on active amœbæ contained in the walls of liver abscesses obtained as fresh as possible from the post-mortem room, and as early as 1902 I reported the following effects of solutions of quinine in normal salt solution. A 1–1000 solution had no effect in several hours, although much weaker solutions had been advised as a bowel wash, a 1–500 solution stopped the movements of the organisms in five to 15 minutes as a rule, but a strength of 1–100 was required to render them inactive and granular in appearance within five minutes, apparently destroying them. Many years later Dale and Dobell pointed out that such tests may be fallacious owing to the frequent rapid death and degeneration of *E. histolytica* outside the human body, but clinically I and others whom I got to try it found that washing out the cavities of recently opened liver abscesses with even a sterile 1–500 solution of quinine did as a matter of fact cause a rapid decrease in the number of active amœbæ in the pus and in two or three days changed a thick amœba containing pus into an almost serous fluid with great benefit to the patient and more rapid healing of the wound. These experiments also became the starting-point of many years' trials of my method of repeated aspiration and injection of amœba-destroying drugs into the cavities of liver abscesses without drainage, which were eventually crowned with success.

Repeated Aspiration and Injection of Amœbicidal Solutions without Drainage.

Although in 1902 I advocated repeated aspiration and injection of quinine solutions into amœbic liver abscesses I met with unexpected difficulties in getting hospital surgeons to try it, while I had no clinical material of my own. The objection which was generally raised, and one which I could never understand, was that "aspiration was not a surgical procedure," and I regret to say that my reply that I had never yet met with a patient who objected to being cured without a surgical procedure was not very cordially received. As a matter of fact, a study of the older literature in India shows that before the days of antiseptic surgery repeated aspiration was commonly employed and as late as 1892 Lawrie, the well-known Hyderabad surgeon, recorded 18 such cases with 15 recoveries, the remaining three dying of dysentery, while in five more the aspirations were followed by opening later and all recovered; remarkably good results as compared with the mortality of at least 60 per cent. following the open operation in Calcutta at a slightly later date. In Lawrie's series 8 only required one aspiration, 6 from two to three, and 1 six aspirations, while one was opened with success after no less than 27 previous aspirations, which at least did no harm even if they did not save the patient from the more serious open operation. It was apparently the progress of the antiseptic system which led to the more frequent resort to the open operation, although I have shown it failed to prevent often serious infection in most cases, but the former widely prevalent, but erroneous belief, that tropical liver abscesses were originally septic cases led to the

importance of this secondary infection being overlooked by many surgeons until my bacteriological examinations of several scores of cases demonstrated the primary sterility of 86 per cent. of them.

The first attempt to use my method was made as early as 1902 by a private medical practitioner, Dr. Arnold Caddy, but repeated punctures failed to strike the abscess—which was evidently on the under surface of the liver, as shown by its bursting into the stomach on the following day, with eventual recovery of the patient—after which I had to wait patiently for several years. Not until 1906 was I able to record two successful cases treated at my suggestion by Lieut.-Col. R. P. Wilson, I.M.S.,[11] now professor of surgery at the Calcutta Medical College. The first case was an acute one, diagnosed early by leucocytosis with low polynuclear count and X ray examination, from which 10 ounces of typical pus were aspirated through the eighth intercostal space and 3 ounces of sterile bi-hydrochlorate of quinine solution containing 22½ grains of the drug injected into the cavity. The temperature finally reached normal in two days, the leucocytosis had disappeared in six days, the patient was allowed to get up on the seventh day and left hospital 12 days later; he was seen and examined by X rays seven and a half months afterwards, when he was in perfect and vigorous health. Wilson was induced to aspirate in this case on account of the early stage of the deeply-seated abscess making it otherwise necessary to incise through the right pleural cavity in the absence of adhesions, and the success of my method in this patient was followed by an equally successful second more chronic type of case.

After this I had less difficulty in getting the method tested, and in 1910[24] I recorded 19 cases with only three deaths, or 15·8 per cent., just one-fourth of that of the open operation, although no less than 16 of the cases were of the most serious deeply-seated type which could only be approached by the transpleural route. A still more extensive trial was given to the method by Lieut.-Col. Thurston, I.M.S.,[12] who has recorded a valuable analysis of 100 large amœbic liver abscess cases treated by various methods in the Medical College and other Bengal hospitals, with the following results. Among 45 cases treated by the open operation the mortality was 40 per cent., and as they were further divided into those receiving no additional treatment with a case mortality of 43·75 per cent., and those in which ipecacuanha or emetine were also given, as advocated by me, with a mortality of only 30·77 per cent., it is clear that the comparatively low mortality in this series of open operations was partly due to the addition of medicinal to surgical measures. This is also brought out by a table in which Thurston shows the mortality in the whole series of 100 cases classed as (1) without oral medicinal treatment internally with 40 per cent. of deaths, (2) cases treated with ipecacuanha with 26·6 per cent., and (3) cases treated with subcutaneous emetine injections with only 25 per cent. mortality, thus demonstrating the value of this specific anti-amœbic treatment even after a liver abscess has formed, to which I shall have to return again.

Among 48 cases Thurston treated by my plan of repeated aspirations and injection of amœba-destroying drugs into the abscess cavities the mortality was only 23 per cent., or little more than one-third of the old death-rate. Thurston further came to the conclusion that no advantage was gained by the injection of quinine solutions into the cavities—a plan I gave up after discovering the greater efficiency of emetine hydrochloride in amœbic disease—and he advises, rightly in my opinion, injecting a grain of emetine subcutaneously immediately after aspirating, with the idea that it will be carried through the wall of the abscess, where the amœbæ are living, during effusion of serum into the cavity following relief of tension by the evacuation of the pus. The number of aspirations he found necessary was one only in 26 cases, two in 16 cases, three in 10 cases, and four, seven, and eight respectively in the remaining three cases. Two patients recovered after 182 and 211 ounces had been removed by three and eight aspirations, while in one of the fatal cases 343 ounces were evacuated at seven punctures, including 92½ at one sitting. When an abscess was nearly pointing Thurston successfully aspirated a little to one side through a greater thickness of healthy tissue to avoid subsequent leaking of pus along the track of the needle, as is done in dealing with tubercular abscesses. In discussing the methods of operating Thurston wrote: "It is scarcely worth going into an exhaustive analysis of the earlier cases which were treated by incision and drainage, as this method to all intents and purposes is obsolete except under unusual conditions": a dictum which I would like to commend to the notice of less experienced surgeons with regard to this disease.

It may be said that this is only the revival of an old method, but there can be no doubt that the aspiration method was formerly given up in favour of the open operation on account of its very frequent failure to cure the cases, and I submit that the success of my plan is essentially due to the establishment on a scientific basis of the specific action against amœbic disease of ipecacuanha, and of its active principle emetine; and it is the combination of repeated aspirations with the destruction of the amœbæ in the liver abscess wall by emetine, as well as in the primary amœbic ulcers in the bowel, which is the essential factor in the recent successes, placing the aspiration method on quite a different and much firmer basis than formerly. I have failed to find any recommendations by former writers of the systematic administration of ipecacuanha after an abscess has developed in the liver, unless dysentery is also present at the same time, which I have shown is rarely the case, and it is this use of the drug which is the essence of my plan, the value of which is well illustrated by the following case, which made a great impression on my mind at the time. A powerful European patient had been operated on four times by the open method in as many months for a series of large tropical abscesses, and some days after the last operation he was still suffering from high fever and severe pain indicating continued infection of the liver. He gave up all hope of recovery, and fortunately for him his surgeon also gave him up, and telling his Indian house surgeon he could do what he liked for the patient. The house surgeon came to me for advice, and at my suggestion at once put him on large doses of ipecacuanha, the value of emetine not having been established until much later, and washed out the extensive wounds with sterile quinine solution through the large drainage-tubes with which his right side fairly bristled. The effect resembled a transformation scene, as the very next day he was free from pain for the first time for months. In three days his temperature fell finally to normal, the amount of discharge rapidly diminished, and in a very few weeks the extensive wounds had soundly healed; I heard from him a year later, when he was in good health and doing the hard work of a mining engineer. Such a case speaks for itself. Equally dramatic results have been recorded by others, which are especially striking in amœbic liver abscesses opening through the lungs, such as that recorded by Prof. Chauffard of Paris,[13] in which a patient had been coughing for five months a daily average of nearly a pint of typical amœbic liver-abscess pus accompanied by irregular fever, but under emetine injections the fever ceased in two days and the expectoration in five days, by which time the leucocytosis had greatly diminished and rapid and complete recovery took place, ulceration in the rectum also quickly healing, while the professor wrote: "It marks one more stage on the road from empiricism to rational therapeutics."

Siphon Drainage for Prevention of Secondary Infection.

Although I submit that my plan of repeated aspiration, combined with specific medicinal treatment, is the method of election in the treatment of purely amœbic liver abscesses, I agree with Thurston that in exceptional cases drainage may be required either for purely

surgical reasons or when repeated aspirations have failed to cure, usually owing to bacteria also having been present from the first, to exclude which cultures should always be made of the pus withdrawn at the first aspiration, and if very numerous colonies develop drainage will be required, although a few colonies, even of staphylococci, do not preclude recovery after aspirations. Even in exceptional cases where drainage is found necessary, after one or more preliminary aspirations, both the size of the cavity and the amount of discharge will be less than if it had been opened at first, so nothing is lost, and much may be gained, by the previous evacuations of pus.

The manner in which a large amœbic liver abscess may contract and encyst under my method of treatment is well illustrated by the following case. At the first aspiration no less than 86 ounces of typical pus were removed; quinine solution was injected and ipecacuanha given orally: nine days later 16 ounces were aspirated and after another week 10 ounces, and after yet another week only 5 ounces of very thin bile-stained fluid, free from amœbæ and pus cells, were obtained. The patient died unexpectedly a few days later, when the post-mortem revealed left pneumococcal apical pneumonia, quite unconnected with the liver trouble, to be the cause of death. The four-pint abscess cavity had contracted down to contain only 2½ ounces of thin fluid containing only a little granular matter and no pus cells, while scrapings of the wall showed no amœbæ, and it was sterile on culture, encystment having thus taken place, while the fibrous wall measured almost half an inch in thickness. Nor is this by any means the largest liver abscess dealt with successfully by the method I advocate, for I have records of two recoveries after 120 ounces had been aspirated at a single sitting. One was that of an emaciated Indian who had been ill for a year and was admitted in such a weak condition that the surgeon was willing for the first time to try my suggestion, as he recognised that the man could not possibly stand the open operation; yet the patient made a perfect recovery after a single aspiration and injection of quinine solution into the cavity and ipecacuanha orally. Still, as cases occasionally occur in which drainage may be necessary I worked out a method of carrying this out in such a manner that no air could enter the abscess cavity and secondary septic infection could be absolutely prevented. For this purpose I got Messrs. Down Brothers to make in various sizes an aspiration trocar with a metal sheath so grooved externally as to make it flexible, while the interior is smooth and easily cleansed, by which means, when the trocar is withdrawn, a flexible, instead of a straight, stiff canula remains in the cavity; and after aspiration of as much pus as possible through it, it can be left in as a drainage-tube, and connected up to pressure rubber tubing reaching down into a bottle of antiseptic under the bed so as to provide sterile siphon drainage. The handle was so arranged that the trocar passed through a piece of pressure tubing, which could be clamped as the trocar was withdrawn until the drainage-tube was attached, no air being thus allowed to enter the abscess cavity, but it was found by experience that this complication of the instrument could be safely dispensed with. A Y-shaped piece of metal tubing was also supplied, which enabled sterile solutions of quinine or emetine to be run into the cavity as often as desired, while there were no soaking dressings to be changed daily, greatly to the safety and comfort of the patient. The instrument was rather a delicate one and expensive for India, and with increasing experience of the success of aspiration and emetine treatment it is now of comparatively little importance, but it served to demonstrate a point some of my surgical friends had disputed—namely, that even in cases where the secondary infection after the open operation is of little virulence, it nevertheless much increases the exhausting discharges and retards healing of the sinus left after the abscess cavity has contracted down; this contraction is rapid in favourable cases. The following instance will suffice to prove my point.

Case of Rapid Aseptic Healing of Liver Abscess Treated by Siphon Drainage.

I am indebted to Lieut.-Col. J. G. Murray, I.M.S.[14] for testing my flexible sheathed aspirating trocar in a liver abscess case in the European hospital, Calcutta; 10 ounces of pus were aspirated through an intercostal space, the cavity was not completely emptied, and siphon drainage was established into a bottle of antiseptic under the bed as above described. The pus obtained at the operation proved to be sterile and at the end of the first day a few ounces had drained into the bottle, while a little thick material was withdrawn by the aspirator, which can be attached at any time to the flexible metal drainage-tube, but only a small quantity of sterile quinine solution could be run into the cavity, so greatly had it contracted under the siphon drainage within 24 hours. The discharge was much less on the second day; by the third morning only a little shreddy pus had drained away and the cavity had contracted so much that only half an ounce of quinine solution would enter it. After a week the discharge had almost ceased and the tube was clamped at night, but kept in as a matter of precaution for another week, although this was probably unnecessary, as the amœbæ had already quite disappeared. On dressing the four-inch sinus three days after the tube was removed it had completely filled up to the surface and only a few drops of serous discharge soiled the dressing, while in one week from its removal and cessation of drainage the wound was soundly healed and the patient left hospital. He was seen repeatedly for more than a year, at the end of which his liver was still normal under X rays and he was in perfect health. It is only necessary to add that his stay in hospital after the operation was less than half the shortest time of any liver abscess case in which the open operation had been performed through the thoracic wall in the same hospital during the previous nine years.

The principle of sterile siphon drainage of liver abscesses being once established, the method of carrying it out may be simplified; in the few cases Thurston found it necessary to drain after he adopted my methods he used the following procedure. "A small incision is made, through which a portion of a long rubber tube is inserted and then closely stitched to the skin incision. The other end of the tube is placed in a bottle filled with lotion by the side of the bed and the pus will then siphon over and there is very much less risk of septic infection. No special apparatus is at all necessary." Thus this simple plan can be carried out in any fairly well-equipped hospital in the tropics without difficulty.

Advantages of Repeated Aspirations in Dealing with More than One Abscess.

I have already pointed out that the fever due to secondary septic infection after the open operation for a liver abscess makes it difficult or impossible to decide whether the symptoms in cases not doing well are due to such an infection or to the presence of an additional unopened abscess requiring further surgical measures. On the other hand, continued fever and leucocytosis after one liver abscess has been aspirated will lead to the early repetition of this simple procedure, which may not very rarely result in a second, possibly unsuspected, abscess being emptied. The coloured drawing of three fibrous-walled abscesses, one immediately behind the other, which I have already shown you, well illustrates this point, for it is obvious that after the most superficial one has been emptied by a first aspiration it would rapidly shrink to small dimensions, and a further puncture would be practically certain to have struck the second one, and yet another the third cavity; so it is clear that repeated aspirations without drainage very materially increase the chances of such multiple large chronic abscesses being dealt with successfully as compared with the open operation, quite apart from the exhaustion produced by repeated cutting operations and copious discharges. How many of the cases cured by repeated aspirations were examples of multiple abscesses it is impossible to say, but the fact that this

class constituted half the fatal cases in my earlier post-mortem series, when the open operation was almost invariably performed, taken together with the reduction of the former mortality to one-fourth by the new methods, makes it fairly obvious that in a certain proportion of the recoveries after several aspirations more than one abscess must have been present, thus indicating a further advantage of the aspiration and emetine method of treatment.

CURE BY ENCYSTMENT.

Instruction of practical value can often be derived from a study of Nature's methods of overcoming serious diseases, which in the case of amœbic liver abscesses are two-fold. First, the abscess may increase in size until it bursts in one or other direction, some of which may result in recovery without surgical interference, such as those opening into the stomach or colon, or more rarely into the duodenum or externally, while the common extension through the diaphragm to open into a large bronchus showed a recovery rate of 54 per cent. in a series I collected some years ago, and is now doubtless much higher under emetine treatment. On the other hand, rupture into the peritoneum, pericardium, pleura, and inferior vena cava (two of the last rare variety being illustrated by specimens in the Calcutta pathological museum) are commonly fatal. These late complications are considerably rarer than they used to be in pre-antiseptic days with late operations, and should become rarer still with early specific treatment of amœbic disease, so are now of comparatively little practical importance.

Much more instructive from my present point of view is Nature's second method of cure by encystment with dying out of the amœbic infection, which is commoner than might be expected, seven instances being met in the Calcutta post-mortem records in patients dying of other diseases, in addition to two found together with active amœba-containing abscesses in the same livers. In one instance I found an abscess which had been opened and drained during life containing amœbæ and bacteria, a second unopened one with amœbæ only, and a third encysted abscess free from both forms of organism and containing thin fluid without cellular contents, very similar to those of the abscess which became encysted after repeated aspirations and ipecacuanha as already described. I shall relate in my next lecture a case in which a liver abscess became encysted under emetine treatment. My method, therefore, brings about more rapidly and far more frequently the formerly rare natural encystment of amœbic abscesses, by destroying the causative protozoal parasite in its walls, and by removing with the aspirator the dead detritus in the form of pus, which becomes steadily thinner and less in quantity with each evacuation in successful cases, until the remaining small quantity of fluid becomes encysted; I may fairly claim that my plan is to assist Nature's method of cure, so can hardly be improved on in theory, and is thus as sound in principle as it is successful in practice.

DANGER OF HÆMORRHAGE AFTER EXPLORATORY PUNCTURE.

An objection has been raised to exploratory puncture of the liver to localise an abscess on account of the occasional fatal intra-abdominal hæmorrhages which have resulted, and some surgeons have even advised that exploratory puncture should never be performed, but the much more formidable procedure of opening the abdomen and palpating the liver to find the abscess should be substituted for it. This danger applies nearly as much to the usual diagnostic puncture preliminary to the open operation as to the aspiration and emetine treatment, while Lieut.-Colonel Hatch, I.M.S., who courageously recorded no less than six fatal hæmorrhages, drew attention[15] to the important fact that they nearly all occurred in cases where the post-mortem proved the absence of any abscess in the liver, so that they clearly result chiefly in the acute congestion of the organ which I have termed the presuppurative stage of amœbic hepatitis. Now it is precisely this stage which I shall show in my final lecture is readily curable by medicinal means and consequently there is no necessity or reason for puncturing such an acutely congested liver, while once the more chronic condition with the formation of a large fibrous-walled abscess is reached the danger of such hæmorrhages is past and the necessary aspirations can safely be performed.

RESULTS OF OPEN OPERATION, AND OF THE ASPIRATION AND EMETINE TREATMENTS.

Table I. includes the results in the liver abscess cases treated in the British Army in India during the 14 years up to 1907 (when I reintroduced and extended the indications for the ipecacuanha preventive treatment), together with figures I collected from the large Calcutta hospitals and two recent Mesopotamia series, giving a total of 2661 cases treated by the open operation with a mortality of 56·8 per cent., while it will be observed that the only figure below 53 per cent. was Thurston's series with 40 per cent. mortality, and it is noteworthy that he administered ipecacuanha and emetine and used siphon drainage in a number of his cases in accordance with my advice. In the lower part of the table four series of cases, treated by my plan of repeated aspirations and the administration of ipecacuanha or emetine, give a mortality in 111 cases of only 14 per cent. or almost exactly one-fourth of that of the open operation; results which should suffice to confirm Thurston's statement that the open operation "to all intents and purposes is obsolete except under unusual conditions," and to establish the new plan of treatment as the method of choice whenever possible.

TABLE I.

A.—*Mortality of Open Operation.*

Report.	Cases.	Deaths.	Percentage.
Army reports (India)	2261	1283	56·7
Calcutta European hospital ..	64	34	53·0
Calcutta Medical College	231	139	60·1
Thurston (Bengal)	45	18	40·0
K. K. Chatterji (Calcutta) ..	15	10	66·0
Love (Mesopotamia)	30	19	63·3
Cotté and Chifolion (Mesopotamia)	15	8	53·3
Total	2661	1511	56·8

B.—*Mortality of Aspiration and Ipecacuanha or Emetine.*

Rogers (Calcutta)	19	3	15·8
Thurston (Bengal)	48	11	23·3
K. K. Chatterji (Calcutta) ..	33	2	6·6
Talbot (Mesopotamia)	11	0	0·0
Total	111	16	14·4

I have the kind permission of my colleagues at the London School of Tropical Medicine to mention that 12 consecutive amœbic liver abscess cases have recently been treated in the hospital by repeated aspirations and subcutaneous injections of emetine with uniformly successful results; a very good record even when allowance is made for the cases seen in this country being less acute on the average than those met with in the tropics.

DURATION OF HEPATITIS BEFORE DEVELOPMENT OF AN ABSCESS.

In my last lecture I shall deal with a simple method of preventing actual abscess formation in the liver by checking the disease in what I have termed the presuppurative stage; it is thus of great importance to know the duration of the symptoms before an abscess develops, regarding which data are given in Table II. together with the proportion of different locations in 59 European cases and the mortality of each variety in 176 native patients. It will be seen that the few multiple small abscess cases developed rapidly, but they are not amenable to surgical measures. Small left lobe abscesses may also sometimes produce localising diagnostic signs in the epigastrium within two weeks of hepatitis commencing, but they usually do well, even with open operation, on account of their comparatively small size, the mortality in my medical

college series having been only 12 per cent. On the other hand, in the larger and more deeply-seated abscesses in the right lobe of the liver, hepatic symptoms were present for from two weeks to over two months in no less than 44 out of 55 cases, or four-fifths, while in nearly one-half the time exceeded one month, thus giving ample time for the preventive treatment in the great majority of European patients coming comparatively early under observation. Further, in the Indian patients the histories were still longer—namely, from one to two months in 37·7 per

TABLE II.—*Duration of Symptoms before Liver Abscess was Found.*

Duration.	European cases.							Indian cases.	
	Multiple.	Left lobe.	Right lobe in relation to			Total.	Percentage.	Total.	Percentage.
			Abdominal wall.	Ribs right.	Through lung.				
Under 1 week	2	—	—	—	1	3	5·2	—	—
1 to 2 weeks ..	1	2	1	2	2	8	13·4	1	1·9
2 weeks to 1 month. ..	2	2	4	8	3	19	32·9	5	9·4
1 to 2 months	—	—	2	5	—	7	11·9	20	37·7
Over 2 months	—	1	3	8	6	18	30·5	27	51·0
Time doubtful	—	2	1	1	—	4	6·7	—	—
Total	5	7	11	24	12	59	—	53	—
Percentage ..	8·4	11·9	18·6	40·7	20·8	—	—	—	—
Mortality % in 176 cases ..	—	12·0	59·0	73·4	46·0	—	—	—	—

cent., and over two months in another 51 per cent.—but in some of these an abscess had doubtless formed some time before they came to hospital.

The last two lines of the table show 8·4 per cent. of the European cases to have been multiple with 100 per cent. mortality, 11·9 per cent. were single abscesses in the left lobe situated in the epigastrium or left hypochondrium, which have a mortality of 12 per cent.; of the large single abscesses in the right lobe 18·6 per cent. were located in the right hypochondrium or epigastrium beneath the anterior abdominal wall, with a mortality of 59 per cent.; 40·7 per cent. were the most deeply-seated and fatal form, situated beneath the ribs with a mortality under the old open operation of 73·4 per cent., while no less than 20·8 per cent. opened through the lungs, which form had a mortality of 46 per cent. when anti-amœbic drugs were not given. These mortality figures should be taken into account in estimating the results of any given method of treatment in comparison with the open operation to which they relate, as comparatively favourable results have been recorded in a series of open operations with a large proportion of small epigastric abscesses and compared with the results of aspiration in the much more serious cases beneath the ribs.[24]

AMŒBIC ABSCESSES OF THE SPLEEN.

This is a rare complication of amœbic dysentery, but I have met with several instances in Calcutta, which have yielded to repeated aspiration and emetine injections, as in the case of liver abscesses. The spleen enlarges downwards and becomes adherent to the anterior abdominal wall, and fluctuation becomes evident, enabling the abscess to be easily opened, although owing to adhesions the cavity may be unable to contract completely and an obstinate sinus may remain, while removal of the adherent organ may be a difficult and dangerous procedure; fortunately the condition is amenable to the new treatment, as in the following case.

The patient was an Indian male with a tender red prominence in the left hypochondrium, from which 8 oz. of thick reddish pus were withdrawn by the aspirator; three days later another 4 oz. were removed, and a grain of emetine hydrobromide injected into the cavity while I found amœbæ, but no bacteria even on culture, emetine being also injected subcutaneously daily. Six days later a third aspiration removed only a little pus but much blood; two days later the temperature fell to normal and a speedy recovery ensued. K. K. Chatterji[25] has also reported similarly treated successful cases, while if the abscess is close to the skin the punctures can be made a little on one side through a greater thickness of tissue.

AMŒBIC ABSCESS OF THE BRAIN SECONDARY TO AMŒBIC LIVER ABSCESS.

This is a still more dangerous complication, of which Armitage[26] has collected 45 cases, no less than 43 of which were secondary to abscesses of similar origin in the liver, a knowledge of which should enable the condition to be suspected whenever cerebral symptoms ensue in a patient under treatment for liver abscess, while all but 3 of the 45 cases were in males, as in the hepatic condition, which may also help in its recognition. Morehead described the first recorded case in Bombay, while almost half the reported cases occurred in Egypt, but I did not meet with it in Calcutta, probably because the brain was not often examined post mortem. The abscesses are generally single, but the cases run a rapid course and have so far always terminated fatally in an average of about seven days after cerebral signs appeared, including three cases in which they were opened.

In view of the successful treatment of abscesses of the liver and spleen by the method already described, I should like to suggest a trial of the following procedure in cerebral cases. The fatal effects of amœbic cerebral abscess must be mainly due to their pressure symptoms, while the rapid course leaves no time for emetine to produce encystment unless the intracranial pressure is relieved by an early decompression operation, at which advantage should be taken of any possible localising symptoms to attempt to draw off the pus with a syringe. Emetine should then be injected subcutaneously morning and evening in 1 gr. doses, or as much as the patient will stand, in the hope of bringing about destruction of the causative amœbæ and encystment of the abscess, the aspiration of the pus being repeated as often as necessary if the collection has been localised, although at the best some permanent damage to the brain is likely to remain. Such a plan of treatment seems to me to be at least worthy of consideration in view of the hitherto hopeless outlook.

My conclusions are that the great majority of large amœbic liver abscesses, which are sterile as regards bacteria, can easily be cured by repeated aspirations, combined with the all-important administration of the specific amœba-destroying ipecacuanha and emetine, with a resulting reduction in the mortality to one-fourth of that of the recently generally used open operation; while in the few exceptional cases requiring incision sterile siphon drainage should always be used to avoid the formerly common and fatal secondary bacterial infections following open drainage in tropical countries.

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LITERARY INTELLIGENCE.—Messrs. Methuen and Co., Ltd., announce the forthcoming publication of "Psychology: A Study of Mental Life," by Dr. R. S. Woodworth, Ph.D., professor of psychology in Columbia University.—Messrs. W. Heffer and Sons, Cambridge, have now in the press "Fundamentals of Biochemistry in Relation to Human Physiology," by T. R. Parsons, B.Sc. Lond., M.A. Camb., demonstrator in physiology in the University of Cambridge.

STUDIES IN EXPERIMENTAL SCURVY,

WITH SPECIAL REFERENCE TO THE ANTISCORBUTIC PROPERTIES OF SOME SOUTH AFRICAN FOODSTUFFS.*

BY E. MARION DELF, D.SC. LOND., F.L.S.

AMONGST South African natives, well-defined scurvy appears to be of rare occurrence so long as they are in their natural environment. When they reach the mines, however, the disease appears to occur frequently, especially since the years of bad local harvests which followed the conclusion of the Boer war. There is little doubt that the explanation of G. Turner with regard to the frequent appearance of scurvy on the Kimberley Mines contains much truth. "Enquiry demonstrated that usually these boys came into hospital about a week after entering the compound. . . . These boys, driven by starvation, came long distances to find work and food. They had been badly fed. The quality of their food, moreover, was bad, consisting practically of store mealies[1]: they could not obtain the milk to which they were accustomed, and the Cape laws prevented them from brewing Kaffir beer. .... The imported mealies these unfortunates had been driven to depend upon were generally artificially dried, and it has been frequently noticed that boys fed on such mealies are particularly prone to scurvy."[11] In the country, however, these are frequently eaten in the green state from the unripe cobs, whereas on the mines only the imported and artificially dried grain is available.

The incidence of scurvy on the mines has been largely reduced by the precaution of a careful medical examination before admission to work, as well as by making additions of fresh meat and vegetables to the diet provided on the compounds. However, in spite of these precautions, occasional outbreaks of scurvy have occurred, and in the year 1920 a marked increase in the number of cases occurring on the Rand showed that further measures were necessary if the disease and consequent loss of efficiency were to be avoided. Further, a number of natives appear to be in a condition of what may be termed latent or incipient scurvy, and this renders them liable to succumb easily to infection and difficult to cure when even simple wounds or abrasions occur. Apparently simple wounds become the sites of ulcers or sores which do not respond readily to treatment, even when the patient has been placed upon a comparatively liberal diet.

The present investigations have been made along the general lines already laid down by Dr. Harriette Chick and other workers at the Lister Institute. Guinea-pigs were used for the most part, but a few experiments were also made with monkeys. The basal diet used was similar to that employed at the Lister Institute,—namely, oats, bran, and fresh milk, autoclaved at a temperature of 120° C. for an hour previous to use. To this basal scorbutic diet was added the substance to be tested, as far as possible in liquid form. Preventive experiments were planned to last about 90 days from the beginning of the special diet. In some cases curative experiments were also carried through, although failure to cure severe scurvy cannot be held to indicate lack of vitamin C in the substance tested.

Experiments with Fruit Juices.

Juices of the following fruits were investigated: peach, pineapple, navel orange, naartje (the local name for the Tangerine orange), and pawpaw (the fruit of *Carica papaya*).

(*a*) *Peach.*—Of seven peach-fed animals, only two were protected from scurvy (Nos. 2 and 5) on average daily rations of 5·8 g. respectively. In No. 5 growth was, however, subnormal and the ridged costochrondral junctions probably indicated a histological condition of a more or less definite scurvy.[10] The appetite of all the animals for milk was good, so that there is no reason to suppose that there was any dietetic deficiency other than that of vitamin C. As the season advanced the peach-juice became less effective and a single animal (No. 57), which had been started on the restricted diet on March 4th, developed scurvy in 32 days on a daily ration of 5 g. of the peach flesh, and made little or no improvement when the ration was trebled in amount. It was found by trial that 260 g. flesh of peach yielded 100 c.cm. of juice and an equivalent ration of juice was therefore substituted for the solid, when necessary, to ensure its consumption.

The results of these experiments indicate that there is a marked falling-off of antiscorbutic value with the advance of the season when only dead-ripe fruit could be obtained.

(*b*) *Pineapple.*—The animals were given 1 c.cm. at first, increasing later to 1·5 c.cm. pineapple juice daily. Symptoms appeared early in the course of the experiment, but the animals survived in a lame condition for the whole experimental period, thus indicating chronic scurvy. Two out of three animals lived in perfect health throughout the experimental period, the third developing an infective complaint. The minimum daily ration of pineapple-juice which affords protection may thus be put at 2·5 c.cm.

Pineapple- and peach-juice are, therefore, about equivalent in antiscorbutic value, but the former is more stable, no sign of deterioration being observed towards the close of the season.

(*c*) *Navel Oranges.*—Experiments with the juice of navel oranges confirm the results already obtained in England by Chick and others, that a minimum protective ration (M.P.R.) of 1·5 c.cm. daily is a sufficient protective ration for a young guinea-pig for a period of about 90 days under the conditions of these experiments.

(*d*) *Naartje* (Tangerine oranges).—Since such closely related fruits as limes (*Citrus medica*, var. *acida*) and lemons (*C. limonum*) have a very different antiscorbutic capacity[7] it seemed desirable to test the vitamin content of naartjes (*Citrus nobilis*, also known as mandarin or Tangerine oranges) which in Africa are often used as substitutes for other oranges. The juice of this fruit seemed not quite as effective as that of the oranges tested, the animals on a ration of 1·5 c.cm. daily developing temporary symptoms suggestive of scurvy in each of three experimental animals, only one of these, however, giving definite signs of scurvy in the post-mortem examination.

(*e*) *Pawpaw* (*Carica papaya*).—Some experiments were started with the juice of the pawpaw. These are being continued by Dr. R. D. Pullinger at the South African Institute for Medical Research. This is perhaps one of the best fruit-juices for the cure of severe cases of experimental scurvy, especially in cases of scorbutic dysentery, when juices such as tomato, orange, or cabbage are apt not to check the dysentery. The M.P.R. for a young guinea-pig appears to be about 5 c.cm. daily, but further evidence is required on this point.† Pawpaw would probably be of much value as a safe source of fruit-juice for hand-fed infants in hot climates. It is, moreover, plentiful in certain localities although not at present a very cheap fruit.

In considering the relative values of these fruits, not only the value of the juice but also the yield, and the amount of waste must be considered. Some idea of their comparative antiscorbutic values is given in Table I.

TABLE I.—*Comparative Values of Peach, Pineapple, Orange, Naartje, and Pawpaw Fruits.*

Fruit.	M.P.R. (c.cm.)	Weight whole fruit (g.) corresponding to M.P.R.	Relative antiscorbutic value.
Peach	2–3 (in season)	5–8 (flesh only)	50–80
Pineapple	2·5	9	44
Orange (navel) ..	1·5	4	100
Naartje	1·5	5	80
Pawpaw	5·0	10	40

It may be estimated that the flesh of peach and pineapple, weight for weight, therefore, are about equally valuable for the prevention of scurvy, whilst oranges are twice as valuable as either. Peaches being more variable in their value are unsatisfactory as a sole source of antiscorbutic vitamin.

Experiments with Vegetable Juices.

The following vegetable-juices were investigated: vegetable marrow, pumpkin, sweet potatoes, and sugar cane. In the first three cases the vegetables were first scraped on a kitchen grater, when the débris was

* An abstract of a report of an investigation into the relative antiscorbutic values of the foodstuffs commonly in use in the dietary of native workers on the Rand Mines, carried out at the South African Institute for Medical Research, Johannesburg.

† Later information from Dr. Pullinger confirms this estimate.

pressed by hand through mosquito-netting to obtain the juice. The sticks of sugar cane were first peeled, then cut into short lengths, passed through a mincing machine, and the products squeezed as before. The sugar cane was received fresh weekly from the Illovo Sugar Estates through the kindness of Mr. W. Pearce.

(*a*) *Vegetable Marrow.*—The results were not conclusive, but it seemed clear that the juice of the young green marrow was more powerfully antiscorbutic than that at the end of the season, when doubling or even trebling the dose of the juice had no ameliorative effects on scorbutic animals. Out of nine animals placed on experiment, only one survived with good health until near the end of the experiment, when this, too, developed definite symptoms of scurvy. The average ration of this animal was 7·5 c.cm. Owing to the short season of the vegetable marrow in this locality, it was not possible to develop these experiments further.

(*b*) *Pumpkin.*—With pumpkin-juice also, protection was only gained with high rations of the expressed juice, as much as 15 c.cm. being required. Two animals on this ration were fine, well developed, and showed only a trace of scurvy when examined after death. The M.P.R. of this juice therefore was about 15–20 c.cm. daily.

(*c*) *Sweet Potato.*—Sweet potatoes (*Ipomea batatas*) are a common vegetable in this country and form a favourite article of diet with the natives. According to Hand and Cockerham[4] they are, weight for weight, of greater food value than the so-called Irish potato (*Solanum tuberosum*). This appears to be partly due to their greater proportion of solid matter, and partly to the presence of proteins in the form of albuminoids instead of in the form of amides, as in the Irish potato. Guinea-pigs will not readily eat the flesh of either kind of potato, but they drink the raw expressed juice willingly. Symptoms of severe scurvy were produced in each of two animals given 3 c.cm. of this juice daily; but all animals given as much as 5 c.cm. were afforded complete protection. The M.P.R. is therefore between 4 and 5 c.cm. daily, and is probably nearer to the upper of these two amounts. Sweet potato is a convenient source of antiscorbutic food for those unable to obtain the more expensive green vegetables and fruit, but it must be remembered that in cooking there will be a loss of antiscorbutic value of at least half and probably more than this.[3] Preventive rations should be calculated to allow for this loss. Table II. shows the relative values of these vegetables when raw with respect to vitamin C.

TABLE II.—*Comparative Values of Pumpkin, Vegetable Marrow, and Sweet Potato.*

Vegetable.	M.P.R. (c.cm.)	Weight (g.) raw vegetable required to give M.P.R.	Relative antiscorbutic value.
Pumpkin	15–20	75–100	5
Vegetable marrow	5 (young)	12 (young)	33
	>15 (mature)	37 (mature)	11
Sweet potato ..	5	13	31
Navel orange (see Table I.).. ..	1·5 (in season)	4	100

(*d*) *Sugar Cane.*—No antiscorbutic value could be detected in the fresh juice of the sugar cane, but rations higher than 10 c.cm. daily seemed not to be tolerated by the animals, which rapidly became extremely ill. Moreover, one out of three guinea-pigs fed with 10 c.cm. of sugar-cane juice with a full ration of orange juice actually showed symptoms of scurvy; whereas all three were in bad condition compared with those given orange juice without excess of carbohydrate.

Germinating Seeds (Cow Peas, Soya Beans, Kaffir Corn).

The cow-peas used were two varieties commonly supplied as food for the native workers on the mines (*Vignum sinense*, var. Whip-poor-Will and var. Wonder). After soaking in water, they germinated readily at a temp. of 25–30° C. As in previous experiments with "Clipper" peas in England, a ration of 2·5 g. raw germinating cow-peas was found sufficient to protect from scurvy for nearly 90 days; Soya beans (*Glycine hispida*), however, when germinated had no perceptible antiscorbutic value when treated in the same way. This unexpected result may be connected with the fact that these seeds store oil, instead of starch, as do the cow-pea and most other leguminous seeds.

In the case of raw germinating Kaffir corn, there was great difficulty in inducing the animals to eat sufficient of the corn regularly. Three animals which each took daily 5 g. of the pulp had marked symptoms of scurvy within 33 days from the beginning of the experiment, but survived in a scorbutic and lame condition until the end of the experimental period. Two others which received a ration of 10 and 12 g. respectively also developed symptoms at nearly the same stage. Towards the end of the experiment these were given also a ration of orange-juice (1 c.cm.) on alternate days. This small addition was sufficient to cure the scurvy symptoms observed. The deficit in antiscorbutic on these rations was therefore not great; no attempt was made, however, to feed larger rations on account of the labour involved in the daily hand feeding, which was the only method to ensure the consumption of so much Kaffir corn.

Pulses and Cereals.

The difference in the antiscorbutic value of pulses and cereals in the germinating state is of interest in connexion with the structure of the seeds. In the former case the seed is occupied entirely by the embryo; in the latter with a food reserve or endosperm, the embryo plant occupying only a small part of the bulk of the seed. The suggestion obviously is that the embryo alone is responsible for the synthesis of the antiscorbutic vitamin during the process of germination.

Methods of Cooking Germinated Pulses.

In previous experiments it has been shown that boiling germinated lentils for only 15 minutes destroyed about four-fifths of their antiscorbutic value.[2] Lentils soften in cooking more easily than either peas, beans, or cow-peas. In addition, at the high altitude of the Rand the boiling point (94·5° C.) of water makes it necessary to boil cow-peas for at least an hour and a half in order to soften them sufficiently. Other methods were therefore tried in the attempt to soften the peas with the minimum loss of vitamin value.

(*a*) *Boiling.*—In one group of experiments the cow-peas were thrown into excess of boiling water to which ammonium carbonate in the proportion of 0·5 g. per litre was immediately added.[5] They were then boiled for 20 minutes, when they were about as soft as they would have been after boiling in water alone for an hour. The time of cooking was reckoned from the time at which the water boiled again after the addition of the seeds. Parallel experiments were started at a later date with cow-peas cooked for only five minutes both with and without ammonium carbonate. The results of these experiments show that a great part of the destruction in cooking occurs in the first few minutes and before any appreciable softening of the tissues. As far as could be seen from the small numbers of animals used on experiment, there seemed to be a distinctly better result with the animals which had the cow-peas cooked for five minutes without than those with the ammonium carbonate. With longer cooking, however, the increased destruction of vitamin C is greater than that produced by adding enough ammonium carbonate to reduce the time needed from one and a half hours to 20 minutes. In all cases protection was achieved only when large rations (from 15–20 g.) were given daily. In one case much improvement was seen by merely decreasing the time of cooking from 20 minutes to 5 minutes. This was manifest almost at once, in a better appetite, an increased weight, as well as later in abatement of the symptoms of scurvy.

(*b*) *Steamed over Water.*—1. Over water to which ammonium carbonate had been added. It was found necessary to steam for half an hour in order to soften the peas sufficiently. A ration of 10 g. produced scurvy of a mild but definite type. On the whole this was a satisfactory way of cooking and probably involved the least loss by diffusion into the water. 2. In an autoclave for 10 minutes at 105–110 lb. pressure. Contrary to expectation, although the method was satisfactory so far as softening and flavour was concerned, the animals did not do well on this method, and severe scurvy resulted after rations of 10–20 g. had been adopted.

(*c*) *Simmered 20 Minutes in Water with the Addition of Ammonium Carbonate.*—In this method the cow-peas were thrown into just enough water to cover them and were then simmered slowly at a temperature of 90–95° C. after adding ammonium carbonate in proportion of 0·5 g. to 100 c.cm. of water. As the cooking proceeded a thick brownish juice was formed, and this was poured off separately and fed to the animals in amount proportional to their ration. These were the most satisfactory of all the animals and were fine, strong, and well grown when the experiment terminated. The rations were, however, high. An original ration of 10 g. being found insufficient, it was increased to 20 g. daily. The

average ration in each of three animals was 17 g., and their condition was markedly better than those having the same average amount of the boiled cow-peas without the addition of any juice. It is probably significant that these were also the most easily fed and took their high rations with the least forcing. There is little doubt that the juice contains an appreciable vitamin value, containing presumably both the water soluble vitamins.

On the whole, therefore, it was recommended that the best method of cooking germinating cow-peas was either to steam in a chamber over water to which a small proportion of ammonium carbonate had been added (0·5 g. to a litre), or preferably, to simmer in a small quantity of water in a double cooker, the ammonium carbonate being added to the water as the peas are thrown in, and the cooking water being eaten as well as the peas themselves. It is probable that on a large scale some modification in the time of simmering and in the proportion of ammonium carbonate might be found advantageous; but (1) the carbonate should not be sufficient to affect the flavour of the peas or to make them slimy, and (2) the juice should be well stirred around the peas and served with each ration.

Experiments with Kaffir Beer.

In South Africa there is a widespread belief in the value of some kinds of native beer, especially as an antiscorbutic drink. Owing to the dangers of intoxication, the Cape laws forbid the brewing of this drink except in certain cases, when it is provided freshly brewed and with a very low alcoholic strength (2–3 per cent.). Natives working on the Rand mines are allowed a liberal ration of this beer twice or three times a week. There are a variety of ways of making the beverage, but in all cases the malt used is made from sprouted Kaffir corn (*Sorghum vulgare*), and it is allowed to ferment in a brew with the addition of mealie meal (i.e., maize meal) for not more than 24 hours before issue. Samples of the freshly brewed beer were obtained regularly from two different mine compounds and a number of feeding experiments with guinea-pigs were started.

In no case was it found possible to secure protection from scurvy in guinea-pigs by means of a ration of Kaffir beer. This was not surprising, however, as the animals would not take the beer readily, an together with their basal milk ration it was impossible to feed into them sufficient even to approach the protective amount. In a few experiments the beer ration was supplemented with a small ration of orange-juice, in itself too little to give protection. The additive effect of both the rations was then sufficient to give the required protection.

Further results were sought by the use of monkeys. Two monkeys were induced to drink a daily ration of at first 80 c.cm. and later 200 c.cm. of the beer, and were kept on an otherwise scorbutic diet. The basal diet was mainly brown bread, butter, cheese, pea-nuts, and autoclaved milk ad libitum. The Kaffir beer ration was fed at first mixed with autoclaved milk, and was given by hand. The experiments were started in April, 1921, and were not complete at the time of writing the report. They have been concluded under the supervision of Dr. B. D. Pullinger, whose results confirm those mentioned below.

The initial weight of the monkeys was 3610 and 3770 g. respectively. (Table III.) After 3½ months of experiment No. III. died after a few days' illness of some apparently intestinal infection. No sign of scurvy was found at the post-mortem, with the exception of local well marked hæmorrhage in the subcutaneous tissue of the right shoulder. No tenderness of the limbs had been observed during life, though a certain stiffness in movement on taking exercise had been noticed and had been attributed to the enforced confinement. No. I., on the other hand, received the same diet for four months without any sign of the development of scurvy until the 114th day, when her gums were obviously purple and swollen. Her average ration of Kaffir beer during this time was 85 c.cm. daily. This ration seems to have about the same effect as a ration of 75 c.cm. fresh English milk given by Hume to monkey "Diana" at the Lister Institute,[1] the monkey developing scurvy after 119 days.

TABLE III.—*Average Daily Consumption of Kaffir Beer (K.B.) and Autoclaved Milk (A.M.)*

Monkey No.	—	Daily average in c.cm. during months of experiment.				Average in c.cm. for first four months.	Initial body weight in grammes.
		1st	2nd	3rd	4th		
I. ..	K.B.	49	77	110	103	85	3610
	A.M.	146	226	260	279	237	—
III. ..	K.B.	62	174	228	224*	166	3770
	A.M.	189	344	334	324*	295	(4320 g.) final weight

* Two weeks only.

There is thus every reason to think that Kaffir beer is possessed of some small antiscorbutic value; and when forming a large part of the daily beverage taken by a Kaffir who would otherwise receive but a small proportion of antiscorbutic food, it is probably an important factor in keeping him in health. The fact that this drink is much appreciated by the native is also a factor of some importance in arranging a native dietary.

The beer thus tested was received from the Ferreira Deep Mine, and the preparation was described by the compound manager thus:—

"Equal quantities of Kaffir corn malt and mealie meal are put into hot water and cooked about five minutes. . . . . It is then cooked in our ordinary steam pots for three hours, put into barrels, and left cooling for a further two and a half days. We then add about two and a half buckets—i.e. 30 lb.—Kaffir corn malt per barrel (45 gallons), and after leaving for 2 to 4 hours the stuff is sieved and served."

In other compounds the proportion of malt is reduced, the mealie meal being increased, and the time of standing to ferment being proportionally longer. Only one sample of beer prepared by such a method was tested and gave appreciably worse results with guinea-pigs. It therefore appears that it is the proportion of malt added rather than the time of fermentation which gives the slight but appreciable anti-scurvy value of the drink.

Curative Experiments.

A number of experiments were undertaken with a view to curing cases of more or less pronounced scurvy. It is impossible to discuss these in the present communication, but the following facts, amongst others, were noticed. Orange-juice here, as often previously, was found to be of marked curative power. Tomato-juice, which has been especially recommended for this purpose in America, was not found to be of any appreciable value. (Recent experiments by Dr. Pullinger indicate that later in the season the juice of the tomato was much thicker, and was as effective as orange-juice both in preventing and in curing scurvy. This is a striking confirmation of the work of A. F. Hess as to the variable nature of certain vegetable and fruit juices with respect to the content of vitamin C.[2]) Pawpaw-juice was found to have unexpectedly good effects, especially in cases of severe scurvy accompanied by scorbutic dysentery. The appetite improved, the diarrhœa ceased, and the animal put on weight in a surprisingly short time. Further experiments by Dr. Pullinger are in progress on the vitamin value of this juice. In addition to the above investigations, a number of tests were made of certain commercial preparations received during the course of the experiments.

The Local Problem.

In discussing the bearing of the results of these experiments on the local problem of the occurrence of scurvy (latent or otherwise) among the natives on the Rand mines, the suggestion is obvious that the vitamin content of the diet should be maintained at a somewhat higher level that heretofore, in order to prevent the occurrence of the disease. So far as the

vitamin C is concerned, this can be done cheaply and effectively by giving a regular ration either of fruit, such as oranges, pineapples, and naartjes when these are in season, or of vegetables such as sweet potatoes, when the former are not available. In the latter case, it is important to see that the rations are not given *after too long cooking*.[4] Some additional protection may be given by means of the Kaffir beer ration as made at the Ferreira Deep Mine. Previous germination of the cow-peas, or beans, used in the daily ration will also help, but these should be cooked as little as possible, and if cooked with little water, should be served with their liquor. When a vegetable such as pumpkin (a favourite with the native) is given, either a much larger ration should be allowed or the antiscorbutic element in the diet should be supplemented in some other way. As a matter of fact, since the scale adopted under the Native Regulation Act, December, 1920, embodying improvements in substantial accordance with the above suggestions, cases of scurvy have been of rare occurrence.

A further problem dealt with is the possibility that there may be more than one vitamin deficiency in the diet. This appears very probable in certain cases, and marked improvement is brought about by the administrations of food or preparations containing vitamins A or B. Certain cases recorded among the experimental animals throw some little light upon this problem. The relation of the energy value of the diet to the vitamin need is also discussed.

The dietary of native mine-workers as at present enforced is detailed, and a table is given of the principal foodstuffs hitherto tested with regard to the vitamins A, B, and C, reproduced above as Table IV.

TABLE IV.—*Food Products Tested at South African Institute for Medical Research, Jan.-Sept., 1921.*

Fresh juice of—	Minimum dose protective against experimental scurvy in guinea-pigs.	Approx. value "C."
Orange (navel)	1–1·5 c.cm.	+ + +
Naartje	3 c.cm.	+ +
Pineapple	2·5 c.cm.	+ +
Peach	3 c.cm. (in season)	+
	>5 c.cm. (end of season)	L.v.
Pumpkin	15–20 c.cm.	,,
Vegetable marrow	5 c.cm. (green and young)	+
	>15 c.cm. (ripe and old)	L.i.a.v.
Sugar cane	10 c.cm. (no protection whatever)	,,
Sweet potato	5 c.cm.	+
Fresh green mealies	15–20 g.	+
Fresh germinating Kaffir corn	>12 g. (probably 15–20 g.)	+
Dry malted germinating Kaffir corn	>10 g. (no protection whatever)	L.i.a.v.
Fresh raw germinating cow-peas (var., Whip poor Will)	2·5 g.	+ +
Fresh raw germinating cow-peas (steamed 30 min.)	15 g. or more.	+
Fresh raw germinating cow-peas (boiled 20 min.)	16 g. (very little protection)	L.v.
Fresh raw germinating cow-peas (simmered in little water 20 min.)	16 g.	+
Kaffir beer — Crown Mines	>10 c.cm.	L.v.
Kaffir beer — Ferreira	>10 c.cm.	L.v.*

L.v. = Little value. L.i.a.v. = Little if any value.
* But better than from Crown Mines; comparable with value of fresh cow's milk.

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ON BLOOD GROUPING AND ITS CLINICAL APPLICATIONS:

WITH A SIMPLE METHOD OF GROUP DETERMINATION.

BY S. C. DYKE, M.B., B.CH., D.P.H. OXF.,
PATHOLOGICAL ASSISTANT, MEDICAL AND SURGICAL CLINICAL UNITS, ST. THOMAS'S HOSPITAL, LONDON.

AT the present time the principal practical importance attaching to the allotting of blood from human beings to its appropriate group lies in the field of transfusion. That transference of blood from a healthy to an anæmic subject should be a desirable procedure is so obvious that it is difficult to say that the suggestion originated with any one particular person. At first difficulties in technique of transfusion barred the way to its wide application, but these having been overcome—as they were very thoroughly overcome during the war—it became evident that, whereas in most instances marked benefit followed a blood transfusion, in some few the reverse was most strikingly the case. In this latter class of case death sometimes followed immediately upon the introduction of the fresh blood from a healthy subject, while in others, although death did not immediately result, symptoms such as rigors, hæmoglobinuria, loss of consciousness, and a condition of "shock" rendered the condition of the patient considerably worse than it was before recourse was had to transfusion.

Occasional Incompatibility of Blood.

The occurrence of these symptoms after transfusion led to the realisation that some human bloods were incompatible with others; investigations conducted by many surgeons practising transfusion finally established the fact that evil results followed the procedure in those cases, and in those only, where the serum of the recipient was capable of agglutinating the red cells of the donor. It has long been recognised[1 2] that the serum of certain human bloods has the power of agglutinating red cells from other individuals. This phenomenon, first noted in the serum of sufferers from various diseases, was thought to be an abnormality resulting from and peculiar to the disease. Later it was established by the work of Moss,[3] von Dungern and Hirschfeld,[4] Jansky,[5] and Landsteiner,[6] that agglutination of red cells might be brought about by serum from perfectly normal individuals. As a result of the work of these observers, it finally became possible to place all human bloods into four groups, according to the manner in which their red cells and serums interacted with each other: the manner of this interaction was elucidated by von Dungern and Hirschfeld.

Factors of the Four Groups.

These authors postulated two agglutinable substances resident in the corpuscles and two corresponding agglutinins resident in the serums. The agglutinable bodies in the red cells they denominated A and B respectively and the agglutinins capable of acting on them *a* and *b*. They further postulated that the agglutinin capable of acting upon the agglutinable body present in any given red cell will never be normally present in the serum of the blood containing that red cell, and conversely that the agglutinin opposite in sign to that of the red cells in the blood will always be present in the serum of that blood. On this basis they allotted the agglutinins and agglutinable factors in the serums and red cells of the four blood groups as follows:—

Group.	*Serum.*	*Corpuscles.*
I.	Agglutinin nil	Agglutinable factor A and B.
II.	,, *b*	,, A.
III.	,, *a*	,, B.
IV.	,, *a* and *b*	,, nil.

Absorption of serums and corpuscles of the various groups against each other has, in the hands of various observers,[7 8 9] established the correctness of this view.

To return to the subject of blood transfusion. It was pointed out above that evil results only follow this procedure where the corpuscles of the donor are susceptible to agglutination by the serum of the recipient. Reference to the above table makes it clear that, since the corpuscles of Group IV. blood contain neither agglutinable factor A nor B, they are inagglutinable by all serums, and consequently can be administered to anyone, of no matter what blood group, without fear of evil consequences. Group IV. then comprises the "universal donors"; a member of this group can act as donor to an individual of his own or any other group. The serum of Group IV. individuals, however, contains both agglutinins *a* and *b*, and therefore members of Group IV. can receive blood only from within their own group.

The corpuscles of members of Group I. contain both the agglutinable factors, but agglutinins are absent from their serum. Since their serum can agglutinate no red cells, they can receive blood from members of any of the groups—they are the "universal recipients"—but can only act as donors to members of their own group. From the same considerations it follows that members of Groups II. and III. can act as donors only within their own group or Group I., and can receive blood only from members of their own group or Group IV. In the early days of the recognition of possible incompatibility of bloods, it was customary to perform cross-agglutination tests between the serum and corpuscles of proposed donors and recipient, and to discard as donors all whose corpuscles were agglutinated by the proposed recipient's serum, or vice versa. These procedures necessitated the withdrawal by venipuncture of several cubic centimetres of blood from both the recipient and the proposed donors, and occupied a good deal of time. Later, when it became evident that agglutination of the proposed donor's corpuscles by the recipient's serum was the only bar to the use of that donor, the tests performed were modified, but still involved the withdrawal of blood which could be ill spared from the recipient and remained complicated and time-consuming.

Simplification of Choice of Donors.

With the recognition of the four blood groups, the choice of donors became greatly simplified. In Group IV. exists a class of persons who can act as donors to any proposed recipient, of no matter what group; consequently, once a proposed donor is recognised as belonging to Group IV., there is no necessity for ascertaining the group of the proposed recipient. When possible donors are limited, as within the members of a family, it is advantageous to know the group of the proposed recipient; a donor may then be selected belonging either to that same group, or to Group IV., a greater range of choice being thus obtained. In institutions, however, or in practices where emergencies calling for blood transfusion may arise with frequency, it is distinctly advantageous to have always on hand a number of possible donors belonging to Group IV., and therefore suitable for all cases.

The determination of the blood group to which any individual belongs is a procedure of the utmost simplicity, taking only a few minutes to perform, and demanding only the possession of known Group II. and Group III. serums. All that is necessary is to bring the red cells to be tested and known Group II. and Group III. serums together and to observe whether or not agglutination takes place. From the scheme given above it follows that:—

Corpuscles agglutinated by—

Both Group II. and Group III. serums	= Group I.
Group III. serum, but not by Group II.	= Group II.
Group II. serum, but not by Group III.	= Group III.
Neither Group II. nor Group III. serums	= Group IV.

Technique of Tests.

For the actual performance of the test various techniques have been suggested. The simplest is to take a glass microscope slide, divide it into two halves by a line drawn with a grease pencil or a diamond; mark one half II. and the other half III. On to each half allow a small drop of blood to fall from the ear of the person to be grouped; place one large drop of known Group II. serum close to the drop of blood on the half slide marked II., and mix blood and serum with a match stick; do the same, using known Group III. serum, to the drop of blood on the half slide marked III.; mix, using a new match stick. Agitate the slide occasionally, and read the result at the end of 15 minutes. Agglutination, if it is to take place, will be plainly visible to the naked eye, and the group of the blood used can be read off as indicated above. The merit of this method is its simplicity, but in many cases, owing to drying of the drop, partial clotting and for other reasons, it fails to give a clear reading. Other more complicated methods for the most part necessitating the obtaining of several cubic centimetres of blood by venipuncture, are described by Moss,[10] Lee,[11] and by Simon, Brem and Sydenstrecker in the appendix to Bernheim's work on transfusion.[12]

A very delicate and accurate method, necessitating only the use of so much blood as can easily be obtained by puncture of the ear with a needle, is the following. Its simplicity of application is vouched for by the fact that it is regularly used by students in the routine laboratory course in the St. Thomas's Hospital Clinical Units. The material required is: needle, red cell pipette from Thoma hæmacytometer, one plain glass slide, two hollow-ground slides, vaseline, platinum loop, normal saline, microscope.

1. Obtain a drop of blood from the ear or finger of the person to be examined.

2. Draw up into the hæmacytometer pipette and, using the normal saline, dilute in the case of a normal person to 1–200. Where grouping a proposed recipient, in which case there will probably be anæmia, it is better to dilute only 1–100.

3. Divide the plain slide into two halves with a grease pencil, mark one half II. and the other III.

4. Mix the blood well and blow out one drop on to each half of the prepared slide.

5. To the drop on the half slide marked II. add a drop of the Group II. serum and on the half slide marked III. a drop of the Group III. serum.

6. Mix each drop of the serum and cells well with the platinum loop and with the loop transfer one drop of each to a cover-slip.

7. Using the vaseline, make hanging-drop preparations in the usual way, marking the slides so as to know which bears the Group II. and which the Group III. serum.

8. Leave for ten minutes, agitating occasionally, and examine under the lowest power of the microscope.

The advantages of this method are that the agglutination, even when only slight, is clear-cut and unmistakable, that the preparation does not dry, and that there is no interference with the agglutination by the serum of the blood under observation. Moss states that the presence of the serum belonging to the corpuscles exercises an inhibitory effect on the specific agglutination. By testing the agglutination of corpuscles washed and then re-suspended in their own serum, as against the same corpuscles suspended in saline, I have been unable to confirm this. Certainly, however, corpuscles suspended in saline agglutinate much better than when in their own undiluted plasma. The inhibitory effect appears to be due to slight partial clotting of the plasma; this interference is ruled out if the blood is used in a high dilution—so little fibrinogen is then present that such change in the direction of clotting as may occur is ineffective. In the method described above the dilution is of this required degree. If no hæmacytometer pipette is to hand, the dilution of the corpuscles may be made as advised by Moss, by allowing one drop of blood to fall into about 8 c.cm. of normal saline in a test-tube. Lee advises the use of citrate in the saline. It does not interfere, but it is of no advantage. Neither is there any advantage in incubating the slides, nor in leaving them longer than 15 minutes at room temperature. In most cases the result is clear within five minutes.

Method of Preservation.

The grouping serums are best kept in capillary tubes sealed at both ends, each containing one or two drops of serum only. In the first instance known serums of Groups II. and III. must be obtained from an outside source, but once, by means of these, complaisant members of Groups II. and III. have been identified, further supplies can be obtained as required. For this all that is necessary is to withdraw 5 or 10 c.cm., allow it to clot, and recover the serum. This may be kept in bulk in a sealed tube with the addition of one or two drops of chloroform as a preservative, or it may be at once put up in capillary tubes. In order to avoid mistakes, it is well to use tubes of different coloured glass for the two different groups. As to the preservative, Schütze advises against the use of cresol: I have not found chloroform harmful.

The isoagglutinins are very stable; in infected serums the agglutinating power remains almost unaffected until the serum becomes so thick as to prevent the corpuscles coming together. As to age, Group II. and Group III. serums collected 18 months ago are still in use in the laboratory of the St. Thomas's Hospital Clinical Units. Heating to 56° C. for half an hour has no effect on the agglutinins; exposure to this temperature for two and a half hours is necessary to destroy them. No special precautions then are necessary to keep stock grouping serums active over long periods.

Anaphylactic Nature of Reaction to Incompatible Blood.

The reason why the introduction of corpuscles agglutinable by the serum of the recipient should be followed by disaster, while the introduction of a serum, in no matter how large amount, capable of agglutinating that individual's corpuscles is without ill effect, is difficult of explanation. It has been widely assumed that the symptoms following the introduction of incompatible blood are all explicable as the result of agglutination, or of hæmolysis, which is regarded as a further stage of the same process, of the introduced red cells. If this is the case, however, it is difficult to understand why a serum capable of agglutinating or hæmolysing the recipient's red cells, administered in no matter how large doses or at how frequent or distant intervals, should be quite without malign effect. Others have regarded the reaction resulting from the administration of incompatible blood as being of the "anaphylactic" order; this view seems to fit in with the facts of the case. Corpuscles capable of being acted upon by the recipient's serum may be regarded as playing the role of antigen; the antibody for this antigen is normally present in the recipient's serum, who thus may be regarded as already "sensitised." Introduction of antigen in the shape of incompatible corpuscles into the circulation produces disaster, as in an animal artificially sensitised to any given antigen. The reverse process, introduction of antibody, in this case a serum capable of agglutinating the recipient's corpuscles, is without effect, and this is more or less parallel to the conditions in artificially induced immunisation. It is true that introduction of a serum lytic for an animal's own red cells will produce symptoms of hæmolysis, but large doses are necessary and the symptoms increase with the dose, which is not the case, save within certain narrow limits, in anaphylactic phenomena, nor in those of transfusion shock.

This view of transfusion shock as an anaphylactic phenomenon is possibly not far removed from the first view, inasmuch as there is evidence that the symptoms of true anaphylactic shock may depend on an interference with the capillary circulation by minute emboli of precipitated protein. Reference may be had to a recent work by Lumière[15] on this question.

Clinical Application of Blood Group Determination.

The principal clinical application of blood group determination at present lies in the field of blood transfusion. The widespread therapeutic indications for this measure are now well recognised; with the introduction of the citrate method,[14] which renders transfusion of whole blood as simple a matter as that of saline used to be, and with the recognition of the existence of the blood groups and the easy means of determining them, through which the disasters of transfusion shock can be eliminated, it may be expected to come into more and more general use. It has been suggested, and there is some evidence to support the view, that the compatibility of donor and recipient is of importance in skin grafting as well as in blood transfusion. Shawan[15] experimented with a number of cases requiring skin grafting in France, and reports that, whereas he had 100 per cent. of takes in cases where donor and recipient were hæmatological compatibles, in those cases in which they were incompatible failure was the rule. Occasions for skin grafting are now much rarer than they were during the war; but, owing to the kindness of Sir Cuthbert Wallace, Director of the Clinical Surgical Unit, St. Thomas's Hospital, the present writer has had the opportunity of making observations on three cases. In the first of these the graft was done before the respective groups of donor and recipient had been determined. Investigation after the event showed that the recipient belonged to Group IV. and the donor to II.—that is to say, they were incompatibles. The graft was a failure. The second case belonged to Group IV., and she was given grafts from individuals belonging to both Groups IV. and II.—that is to say, both from a compatible and an incompatible. None of the incompatible grafts took, but many, if not all, of those that were compatible did so. The third, belonging to Group II., received Group IV. grafts; the grafts were compatible and all took. The evidence in this direction is as yet scanty, but seems to indicate the advisability of using skin grafts from hæmatological compatibles.

Medico-Legal Aspect of Blood Group Determination.

The determination of the blood groups may also come to have applications in legal medicine in two ways: firstly, in the narrowing down of the individuals from whom a given sample of blood may have come; and, secondly, in the determination of paternity. As regards the first application, Schütze has shown that it is possible to determine the group of blood which has been dried for a long time. Bloodstains, even if proved to be human, on the clothing of a suspected murderer, if shown to be of a group to which his supposed victim did not belong, would serve as no evidence against him—while if the groups tallied, the evidence would be strengthened. In such cases also useful evidence might be obtained as to the truth of the asseveration so frequently made that the stain came from the suspected person himself. As regards paternity, it has been suggested by Hirschfeld and Hirschfeld,[16] and confirmed by Learmouth,[17] that the factors A and B of the corpuscles behave as dominants and are inherited according to Mendelian laws. Thus two persons of Group IV. can beget nothing but Group IV. children; two persons of Group II. nothing but Group II. or IV., and of Group III. nothing but Group III. or IV. children. Exceptions in the children might be produced as evidence of non-paternity.

Observations on the distribution of the different groups in the general population have been made by various authors; in Western Europe and America the incidence of the various groups is very much the same, but Hirschfeld and Hirschfeld[16] have shown that the B factor increases in proportion, with a resultant increase in the numbers of Group III., as the Orient is approached.

For America (Baltimore) Moss gives the following proportions: Group I., 10 per cent.; Group II., 40 per cent.; Group III., 7 per cent.; Group IV., 43 per cent.

Von Dungern and Hirschfeld found the distribution in Germany (Heidelberg) as follows: Group I., 6 per cent.; Group II., 47 per cent.; Group III., 11 per cent.; Group IV., 36 per cent.

In this country (London) the observations of the writer on a small series of 75 persons gave the following distribution: Group I., 6·6 per cent.; Group II., 40 per cent.; Group III., 10·7 per cent.: Group IV., 42·7 per cent.

It will be noted that in Western Europe and in America alike the incidence of Group IV. individuals, the universal donors, is fortunately high.

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AN UNUSUAL CASE OF RUPTURE OF THE LIVER.

BY HARRY MEADE, F.R.C.S. IREL.,
VISITING SURGEON, ST. VINCENT'S HOSPITAL, DUBLIN.

THE following case of rupture of the liver seems worth recording, partly on account of the unusual cause, and partly on account of the result obtained by transfusion.

P. F., male, aged 17 years, was admitted to St. Vincent's Hospital, Dublin, on June 28th, 1919, sent by Dr. J. Mathews, of Cavan, with the diagnosis of injury to the liver; Dr. Mathews's notes on the case, which he kindly forwarded to me, are as follows:—"On June 16th the patient when jumping a fence 4 feet high touched the top and was thrown on to the road. He immediately felt a 'heavy dizziness' in his head and pain in right side with difficulty in breathing. He got up, walked about 250 yards, and collapsed. I saw him about one and a half hours after the accident and found signs of internal hæmorrhage. Patient lay on his back with knees drawn up, mucous surfaces pale, skin cold and clammy, pulse thin, frequent 130, abdomen rigid, with tenderness over right hypochondrium, and vomiting. I gave him ¼ gr. of morphia hypodermically, a bismuth mixture, and diluted milk in small quantities. On account of incessant vomiting all oral feeding except ice was stopped on the 17th, and he was fed by nutrient enemata up to the 24th. Within 48 hours of the accident the right hypochondrium and the right flank became very distended, and he seemed in a hopeless condition, but rallied a little on the 24th; I started careful oral feeding with bismuth mixture, which he retained. He continued to improve, and on the 28th I thought him fit to stand the journey to St. Vincent's Hospital, Dublin."

On examination patient was very pale, with a slight icteric tinge; temp. 97° F., respirations 30, pulse 126 and hardly perceptible. Complained of pain over the abdominal swelling, and a catch in his breath. No signs of discoloration of abdomen; but there was a swelling that moved very slightly with respiration, extending from left side and a little above the umbilicus down to the right anterior superior spine and up to costal border, which bulged forward. It was dull on percussion, the dullness extending up to third rib in front, fourth in axillary line, and about fifth behind. Heart displaced to left. On auscultation, breath sounds absent over lower portion of lung and somewhat bronchial above that level.

Patient's aspect was so bad I thought it inadvisable to perform a laparotomy; I inserted an exploring needle first in front slightly medial to the gall-bladder, at about the most prominent point of the swelling, with negative result; so I inserted in the eighth space, in the mid-axillary line, and withdrew 3 pints of blood tinged with bile. This caused a diminution of the swelling, and gave immediate relief from the catch in the breath. Temp. remained about 98°, occasionally rising to 99·5°, and pulse dropped 96–100, becoming much stronger. In my temporary absence Dr. F. J. Morrin tapped him again, as the swelling had increased, and removed 5 pints, one month after the first tapping.

Operation.—On my return in August I found him looking very bad, with yellow-greenish colour, having wasted considerably. The swelling, larger than when I first saw him, had descended below the umbilicus; dullness had increased about 1 inch higher, so I decided to operate. On August 6th, under open ether anæsthesia, I made a right rectus incision, and on opening the peritoneum found a large cavity containing broken down blood-clot mixed with bile. The quantity removed was 8 pints, besides what was soaked up in the sponges. I now found I could insert my hand into the thorax as high as the third intercostal space without pressure on diaphragm, and on examining below I found that the liver was torn in two (as shown in the diagram). The torn portion was adherent to the anterior abdominal wall, cutting off the cavity with the clot from the general peritoneal cavity. The tear in the liver was to the right of the vena cava, and passed almost to the inferior border of the liver at the gall-bladder. Being afraid that if I freed the adhesions I might start a bad hæmorrhage, I decided to close the abdominal wound, leaving in a small rubber drain at its upper angle.

Diagram showing condition found at operation. The shaded portion represents the area of dullness.

Transfusions.—About a week after the operation the patient's temperature started to go up to 100°–101·5°, and pulse-rate 100–129. This continued for about eight weeks, during which time the patient improved in weight and colour. He then had a severe hæmorrhage from the wound where the tube was placed; the latter continued to discharge all the time a sterile brownish fluid. After the hæmorrhage the temperature rose to 103°, and then came to normal in a couple of days, but the pulse kept between 115–140; he began to waste, and had repeated and progressively serious hæmorrhages.

I called in Dr. J. B. Magennis in consultation; we decided that transfusion of blood was the only chance he had. I sent word to his people to see if I could get a donor, and was informed that one of his brothers had volunteered, but he did not put in an appearance for several weeks, by which time the patient was nearly moribund. Mr. T. T. O'Farrell tested the blood and found it compatible; 600 c.cm. of citrated blood was transfused on Nov. 21st. There was a very slight shivering that lasted a few seconds at the start; otherwise the patient felt nothing. He had no more hæmorrhage and improved so rapidly that a second transfusion was decided upon. On Dec. 17th the second transfusion with blood from the same brother was begun, but before 2 c.cm. had been transfused the patient had a severe reaction; in two minutes his whole face was œdematous, especially the eyes and ears. He complained of a feeling of suffocation, got cyanosed and pain in the back, pulse weak, so we gave no more than 2 c.cm., which had no further ill-effect. Patient continued to improve, the brownish discharge stopped, but some pus appeared in February and a culture proved to be a pure diphtheroid. Mr. T. T. O'Farrell made a vaccine. The patient by this time was up and left hospital with a slight discharge. Dr. Mathews gave him the vaccine, and when he had finished the supply a fresh culture was sent which proved to be the same as the first. This was June 25th, 1920. The patient still continued to improve, and by the middle of July the wound was healed. Dr. Mathews now informs me that the patient is in perfect health, rapidly putting on weight, and has returned to his studies.

Remarks.

A point of interest in this case is whether the tear in the liver was the size that I found it, or was increased by the blood pouring out between the liver and the diaphragm, thus increasing the tear in an abnormally friable liver. In either case it is remarkable how Dr. Mathews succeeded in getting him down to Dublin in an open Ford car, the only available means of transport, under such adverse circumstances. The severe reaction to the second transfusion could not be due to the citrate, of which the patient received too little to affect him; nor was it due to the rubber tube reaction, as described by Dr. J. H. Stokes, as the tube had been used in at least a dozen cases without any reaction. This was the first case in which we had a reaction when using the same donor a second time, though we had previously done so on at least four occasions; but it was also the only case in which we did not test the blood a second time. Having never found it incompatible before we did not think it necessary to do so.

Medical Societies.

ROYAL SOCIETY OF MEDICINE.

SECTION OF PSYCHIATRY.

THE IDEAL CLINIC FOR NERVOUS AND BORDERLAND CASES.

A MEETING of this section of the Royal Society of Medicine was held on March 14th, with Dr. BEDFORD PIERCE, the President, in the chair, when a discussion on this subject, adjourned from the meeting on Feb. 14th, took place.

The PRESIDENT asked Dr. Helen Boyle briefly to recapitulate the main points in the paper which she had read at the previous meeting.

Dr. HELEN BOYLE said that the aim of the ideal clinic was to apply to early cases of mental disorder the same intelligent effort as is spent on the treatment of physical diseases. The main points for discussion were the desirability of a department for in-patients as well as out-patients, the best situation (town or country) for the clinic and the best type of building. The equipment, staffing, and financing of such a clinic were also important matters. Perhaps the most debateable aspect of the subject was the class of patient to whom the clinics should be made available; and whether the doors should be locked. Taking the points in order, Dr. Boyle said that in her opinion beds were essential, since adequate physical treatment could not be carried out in an out-patient department. The advantages of country quiet were chiefly imaginary, and the proximity of teaching hospitals in a town outweighed any more favourable situation of a country clinic. As to the building, Dr. Boyle favoured a block system, with separate blocks for men and women, with certain rooms in which they might mix. Single rooms were inadvisable and the smallest ward should contain at least four patients. A wide range of environment, mental, moral, and physical, should be assured, and occupational therapy should not be neglected. The staff should be on the plan of a general hospital, and should consist of part-time medical men and women with resident house physicians, all chosen with a special view to experience in the care of mental diseases, as well as in neurological work. The nurses should be as varied as possible in training, age, and temperament. Dr. Boyle looked forward to the time when we should prescribe people as we prescribe drugs. The choice of the matron was all-important, as the tone of the establishment depended in such a large part upon her personality. Hardly any domestic staff would be required, since in the right atmosphere the patients would gladly perform most of the domestic work. Attached to a clinic should be social service workers, who would coöperate by making the necessary inquiries as to outside circumstances of the patients. The financing of these clinics should not be a drawback, as they would save millions spent on asylums. As for the class of patient eligible, it should include men, women, and children, especially the latter, with mental disorders of a type likely to be improved by treatment, and only those individuals should be chosen who showed a will to coöperate in the treatment. The element of compulsion was foreign to the treatment of other diseases, and tended to impart fear to the patient. A bright and hopeful tone was not compatible with locked doors.

Discussion.

The PRESIDENT said he was deeply impressed by Dr. Boyle's views, and was, though with difficulty, convinced that the voluntary system was the only practicable one. He considered a case made out for the absence of compulsory detention, if the character of the clinic was to be maintained. He asked in what sense Dr. Boyle defined the term "voluntary patient"? It would seem that she meant patients willing and anxious to coöperate in the work of the clinic; this definition would exclude the confusional cases, nearly all puerperal cases, and many acute psychoses. But if the term were used in a looser way, as those who were willing to go but had not sufficient power to exercise any volition, a much larger section of people could be treated. It occasionally occurred that patients were certified and sent to an asylum, and recovered within a week, to the embarrassment of the medical man who signed the certificate. A clinic ought to provide a place of observation for such patients, a place where practitioners could send a doubtful case. The President asked Dr. Boyle in what way depressed patients, or those who were alternately elated and depressed, reacted to an attempt to create and maintain a bright and hopeful spirit in a clinic, such as she described as existing at the Lady Chichester Hospital. Were patients in a state of prolonged depression sent away because they would not coöperate? At the Retreat, York, in the last 18 months one suicide, and one attempted suicide and two or three cases causing anxiety had been met with; and presumably Dr. Boyle also had cases which caused anxiety in this way, especially since information as to the absence of suicidal tendencies was not always reliable. Dr. Boyle had maintained that if these clinics were established throughout the country an immense number of persons would be prevented from becoming insane. Would not the patients at a clinic include many neurasthenics, who would not, in any case, become insane? This was an important point in connexion with finance, since if the cases relieved were chiefly the psycho-neurotic it might be difficult to persuade responsible authorities to provide the money required for the establishment of the clinics. The President brought forward these points to stimulate discussion, though personally convinced by Dr. Boyle's arguments. Possibly, though a voluntary system would be necessary to initial success, with the growth of public opinion some degree of compulsion might be included without damaging the popularity of the clinics.

Dr. R. G. ROWS said that for seven years he had been working with early cases, and in the two hospitals with which he had been connected all types of patients were admitted. He considered that the type of building or its situation was of very secondary importance, while the medical staff was of immense moment. The staff must be trained not only in psychology but in the anatomy and physiology of the central nervous system; in neuropathology, anthropathology, and sociology also. The voluntary or non-voluntary basis was of much less importance than the results of treatment of individual cases in advertising the merits of the clinic to the public. Intending patients were really only interested in whether or not recovery took place in the hospital; and provided the atmosphere was good, a hostile spirit in individual new patients could easily be broken down. The Macgull Hospital was built in six blocks; every type of case was admitted into each block to see whether it was advisable to mix different sorts of cases, and the experiment had proved a success. A large number of the cases which had passed through Dr. Rows's hands were definitely certifiable, and a number of them recovered without being sent to an asylum. The nightmare that patients will not come if they are to be mixed with more acute cases was definitely excluded by this experiment. In one big mental hospital in New York, 75 per cent. of the patients were voluntary. In another American clinic, since financial considerations would not allow of a separate building, room was found for a clinic on the first floor of a mental hospital, and no prejudice was apparently allowed to interfere with its success. Dr. Rows agreed that in- and out-patients must be accommodated; but thought that the director and the senior staff at any rate should serve full time. The patient should be able to go to his doctor for a talk at any moment if he felt an emotional state coming on.

Dr. T. S. GOOD suggested that the term "certifiable patient" was interpreted very differently by different people. What was a "certifiable patient"? One of

the great stumbling blocks of reform was section 315 of the Lunacy Act, for thereby a doctor was not allowed to say, "I don't know"—he must label the patient. Of more than 300 pension cases which had passed through his hands, six only had had to go into a mental hospital. 47 per cent. of these patients were on full work, and the average rate of pension was on a 30 per cent. basis. A large number of these men could have been certified if desirable. This was easy to arrange in an out-patient department, but unless some alteration in the law took place, Dr. Good confessed that he would not be brave enough to adapt the principle of non-certification to in-patients. The great fear in the mind of the patient was that of losing his mental entity, and he associated this danger with entrance into a mental hospital. Dr. Good did not see how we could deal with acute confusional insanity or with cases of great excitement at present, since they would not voluntarily submit themselves to treatment. Only in one block of his hospital were doors locked. His out-patient department he had started single-handed on a very small scale, but it was now crowded. Patients came and sent each other, because they recognised the benefit that they had reaped. If they were treated like ordinary out-patients at a general hospital, patients would go anywhere, even to a mental hospital, for treatment. Till the law was altered, uncertified mental in-patients would, in Dr. Rows's opinion, be impracticable; but there was no reason why we should not go on treating out-patients.

Dr. J. CARSWELL described the opening of observation wards in Glasgow Pavilion, as part of the general hospital, in 1904, and the development of this department since. There were two floors, each consisting of a ward of 25 beds, of which one was devoted to males and the other to females. Through these wards something like 600 to 700 patients passed annually. Since the area of the parish was also the area of the District Board of Lunacy, the personnel of these two departments was to a large extent the same, and the question of payment for patients out of the rates was less complicated. Dr. Carswell had held the appointment of certifying physician of lunacy until 1914; and in this capacity had complete control of the whole system. His duties were to visit the patients in their homes and select individuals suitable for the observation wards. Only chronic cases and patients who would not consent to place themselves under observation were certified. It was his duty to treat the patients at the hospital, and he was also a recognised university lecturer in psychiatry. The results were as follows: In a population of nearly 600,000, about 1000 patients per annum were seen by him, and from 60 to 70 per cent. of these patients were taken under observation. An annual average of 64 per cent. were willing to come into hospital as "voluntary patients," in the second sense mentioned by the President. If a patient showed hostility, or if, having been admitted he insisted on leaving, he was perforce certified. The work of this clinic was carried on in a general hospital abutting on the main street. The average number admitted per annum was 640 in the ten years ending 1914. Of these, 261 were discharged recovered, 111 were discharged improved every year, and 248 sent to asylums.

Dr. M. E. FRANKLIN gave an account of some of the methods of dealing with cases of unstable mentality, psychoneurosis, and early psychosis in the United States. Psychopathic hospitals were of two types: (*a*) private, and (*b*) State institutions, and differed in their methods and aims. Dr. Franklin described the private clinic associated with the Johns Hopkins Hospital, Baltimore, and connected therewith by a covered passage. The organisation is under the direction of a part-time professor (Dr. Adolf Meyer), with assistant psychiatrists, four resident psychiatrists, and four resident officers (unpaid), as well as an adequate nursing staff; also pathologists, research workers, librarian, technician, &c. The medical officers comprise men and women, and facilities for psychotherapy, hydrotherapy, recreation, and re-educational handicrafts are provided. There are 65 beds at a maximum charge of about $35 a week, but most pay less and some local residents nothing. About 20 private patients are taken. Psychoneurotic and borderland cases form the majority of the patients admitted, but some voluntary cases of acute psychosis are taken. The patients are all uncertified and can leave at three days' notice. Children form a large proportion of the out-patients, and in this department the assistance of post-graduate and senior students under supervision help to overcome the difficulty of giving adequate time to individual cases and also to train the future general practitioner. Dr. Franklin described the State Psychopathic Hospital, Boston, as a type of public clinic. In 1919 it was a hospital of 110 beds, with an out-patient department and laboratories, &c., supported by the State of Massachusetts for the diagnosis and temporary observation of mental disorders and for research. Admission was free; patients usually remained ten days. Cases whose conduct might otherwise necessitate detention in prison or workhouse pending examination were brought to the hospital under some form of legal commitment. 57·5 per cent. of the 11,289 in-patients admitted during a period of six years were referred for observation and report under a ten-day order made by a physician, or by various authorities. Only 17·6 per cent. were voluntary patients on a three days' notice basis. The administrative and clinical departments were managed separately, although both were under medical control. A large staff of medical men and women, some voluntary, was employed. The clinic also employed and trained psychiatric social workers. Dr. Franklin also referred to the State Psychopathic Hospital, which is part of the general hospital buildings of the State University of Michigan. Several general hospitals have set aside wards for mental patients; Dr. Franklin considered these less successful. Some 29 States legalised the admission of voluntary boarders at State hospitals. Mental hygiene clinics for out-patients had been established in connexion with various hospitals, clubs for working people, settlements, industrial organisations, schools, and so on. The National Committee for Mental Hygiene coördinated the work of the various agencies for dealing with mental disease and defect, and the preservation of mental health, and initiated improvements and new enterprises.

Dr. E. MAPOTHER described results of observation on an extensive tour of psychiatric clinics on the Continent, of which the one at Munich was the prototype. It formed a section of the University, under the direction of Prof. Kraepelin, and its functions consisted not only of routine work but of teaching and research. Treatment to recovery was only undertaken when this could be expected to occur fairly quickly. It consisted of an out-patient polyclinic for neuroses and early cases, and an in-patient clinic the doors of which were open day and night. Patients might be removed by friends who took responsibility. However, it was understood that admission implied obedience to the director, and though theoretically patients could leave at 24 hours' notice, this was not found workable in practice. The stigma on asylums abroad was not less serious than in this country; but suspicion of the motives of directors was apparently unknown. All classes frequented these clinics. For the third, and lowest, class a small fixed sum was contributed by the local authority; in the second class a slightly larger amount was contributed by the patient if possible, and a patient in the first class paid larger sums for the sole advantage of a better diet. There were 160 beds in the clinic; about 2000 patients were admitted annually and 900 eventually found their way into asylums. No case was rejected on grounds of severity. 85 per cent. of the cases admitted to an adjoining asylum came from the clinic. A stranger would have been unable to guess he was in the wards of a mental hospital. The nursing was carried out by Roman Catholic sisters in male and female wards, assisted by attendants in the former and ward-maids in the latter. The sisters' work was described as beyond praise, and extended over 13 hours a day; many of them were

reported to die young of tuberculosis. The medical staff consisted of the director and four senior and four junior medical officers, and qualified clinical assistants amounting to 18 in all. Each medical student at Munich had to attend four lectures and demonstrations a week for one year and sometimes for two years, and the clinical assistants were chosen from those students who had shown special aptitude in the subject of mental disease. The salaries given for these appointments were trivial; they were not considered only as a preparation for a career as alienist, but were sought after as a preparation for ordinary practice. Dr. Mapother also described clinics in Coburg, Utrecht, and Amsterdam, and laid stress on the fact that everywhere abroad women medical officers appeared to be successfully employed.

Reply.

In answer to the PRESIDENT, Dr. BOYLE said that in the Lady Chichester Hospital active suicidal cases were not sought after, but it did not follow that they were never received, since information was frequently unreliable. It was her experience that patients with organic disease were frequently sent in as hysterical, and vice versa. When they first entered, patients were placed in observation wards for a short time under constant supervision. She contended that, especially in children, many cases of incipient insanity could be treated, and their symptoms alleviated. Innumerable early mental cases could be treated who in time would become certifiable if left alone.

SECTION OF ELECTRO-THERAPEUTICS.

A MEETING of this section of the Royal Society of Medicine was held on March 17th, with Dr. E. T. CUMBERBATCH in the chair, when a discussion was held on

Electric Shock: Pathological Changes and Treatment.

Dr. T. M. LEGGE gave an account of the difficulties experienced by the factory inspector in laying down regulations for the first-aid treatment of cases of collapse produced by electric shock, since the medical profession itself was uncertain as to the best means of treatment. He asked the meeting to formulate, if possible, the lines of treatment that should be carried out, so that they might be popularised amongst workers in electric installations. At present, as a result of discussions held about ten years ago and of recommendations by Jellinek and others, artificial respiration is employed, but the fact that many cases succumb in spite of its prolonged application makes it advisable, in the light of further medical knowledge, to consider whether the methods now adopted should be supplemented or substituted by others.

Mr. SCOTT RAM, H.M. Senior Electrical Inspector, pointed out that low pressure fatalities were commoner than high, the number rising in the last ten years from 45 to 150, and that alternating currents were more dangerous than continuous. In his experience, cases which had had a fall subsequent to receiving the shock were more likely to recover than others. During the last year no less than seven accidents occurred where men came into contact with overhead trolley wires, and fell from heights varying from 5 to 35 ft. Although in each case the current was sufficient to cause death, all the cases recovered without the aid of artificial respiration. It would appear that some counter stimulus, mechanical or otherwise, may play an important part in the treatment of the condition, and Mr. Scott Ram suggested that the patient might be lifted up by the head and heels, and bumped upon the floor, or that some other form of corporal punishment might be recommended. Mr. Scott Ram said that the immediate effects of a low pressure alternating current is that the patient cannot move. He becomes rigid, but may be able to shout for assistance or to give directions for switching off the current. The area of contact may be no larger than an ordinary household switch held between the finger and thumb. Mr. Scott Ram issued a grave warning on the dangers caused by persons installing electrical apparatus when they are not aware of the dangers to be guarded against, and cited as an example the case of some electric light baths installed at a well-known watering place. His verdict when invited to inspect them was that if the apparatus had been designed for the express purposes of electrocuting both patient and attendant no better device could have been arranged. He warned the medical profession against the use of electrical apparatus where the current is taken from the public main. Should any leakage in the apparatus occur, the whole current, usually about 240 volts, may be passed through the patient, when death would almost certainly be caused. A battery or small motor generator, incapable of producing more than 10 volts, or whatever is required, should always be used for these purposes.

Dr. GOODMAN LEVY, from the results of experiments on animals, agreed with the opinion expressed by Prevost and Battelli in 1900, and by Jex-Blake in 1913, that death was due to cardiac fibrillation. Spontaneous recovery from this condition does sometimes occur, but never after a lapse of more than two minutes. In cats cardiac massage will sometimes restore the heart, but it must be commenced at once, and obviously is not practicable in human accidents. In man, unless the heart recommences to beat within 10 minutes, irreparable damage is done to the central nervous system, and recovery is impossible. Dr. Levy's view was that when once the heart had commenced to fibrillate artificial respiration was useless, and it was therefore waste of time to continue it when the heart had ceased to beat.

Dr. B. H. SPILSBURY expressed the view that, from his experience in post-mortem examinations, the electric current passed through the superficial rather than the deep tissues of the body. He believed that the shock is reflex in action, and is produced by sensory nerve stimulation, rather than by the direct action of the current on the heart muscle. He quoted a case of a man who was rendered unconscious by an electric shock. His companions immediately commenced artificial respiration. Ten minutes later the doctor arrived, pronounced the man dead, and went away. The workmen, however, persisted in the artificial respiration, with the result that in an hour the heart began to beat and he eventually recovered. From this case alone he argued that artificial respiration should be carried out in all cases for a prolonged time before all hope is given up. Dr. Spilsbury emphasised the fact that death might be apparent rather than real, as cardiac fibrillation causes a fall in blood pressure, and the pulse and heart sounds are imperceptible. It was agreed that it is almost impossible to distinguish clinically between this real and apparent death, and therefore the patient must be given the benefit of the doubt. The cause of sudden death from a sensory stimulation is uncertain, but it may be due to reflex paralysis of the respiratory centre, together with the vaso-motor centre, and the heart may in such cases beat for some time after the cessation of respiration. It is therefore all-important to continue the artificial respiration until the respiratory centre has recovered.

The PRESIDENT summed up the conclusions arrived at in the view that artificial respiration should be tried for an hour or more, and that vibration of the heart should be employed. Stimulatory drugs, as suggested by Prof. J. A. MacWilliam, might also be injected straight into the heart, or into a vein. Medical practitioners were evidently not all aware of the value of artificial respiration in these cases, and it was important to bring the matter to the notice of all workers in electric installations and to the doctors connected with them.

SOCIETY FOR THE STUDY OF INEBRIETY.—The annual meeting will be held in the rooms of the Medical Society of London, 11, Chandos-street, Cavendish-square, London, W., on Tuesday, April 11th, at 4 P.M., when Prof. E. L. Collis will open a discussion on the Use of Alcohol by the Industrial Worker

LIVERPOOL MEDICAL INSTITUTION.

A MEETING of this institution was held conjointly with the Manchester Medical Society on March 2nd, with DR. J. HILL ABRAM, the President, in the chair.

Prof. G. R. MURRAY (Manchester) read a paper on the

Treatment of Hyperthyroidism and Exophthalmic Goitre.

He stated that the cases in which hyperthyroidism occurred might be divided into three groups: (1) Simple hyperthyroidism, (2) toxic adenoma with hyperthyroidism, (3) exophthalmic goitre. The determination of the basal metabolic rate was helpful in determining the severity of the malady and the progress of treatment. In simple hyperthyroidism surgical treatment was not required, as medical treatment sufficed. In toxic goitre partial thyroidectomy was required if the trachea was compressed or if the toxic symptoms were marked. In mild cases, or in those in which operation was contra-indicated, hyperthyroidism could only be treated by medical means. In exophthalmic goitre medical treatment should be tried for six months. This consisted of rest, suitable diet, and medicinal treatment with the use of X rays or radium. The importance of diet had been shown by the work of Dr. Chalmers Watson, Colonel R. McCarrison, and Prof. and Mrs. Mellanby, though we could not without further evidence assume that these experimental results could be immediately applied to the treatment of the malady in man. The chief difficulty arose in selecting those moderate and severe cases most suitable for surgical treatment. The advantages were: (1) The saving of time by the rapid reduction of the hyperthyroidism and the relief of symptoms; (2) diminution of the risk of injury to the myocardium; (3) complete and rapid recovery in some cases. The disadvantages were: (1) Risk to life; (2) uncertainty of the ultimate result owing to the difficulty in determining the extent of operation suitable in each case; (3) the tendency to relapse a year or more after operation.

Mr. GARNETT WRIGHT (Manchester) read a paper on

The Surgical Treatment of Gastro-jejunal Ulcer.

After a short review of the theories concerning the causation of jejunal ulcer in which the persistence of the original cause of the ulceration was emphasised, he read a short account of seven cases which had come under his care. The methods of surgical treatment adopted were classified under the following heads: (1) Local excision of the ulcer; (2) undoing the gastro-enterostomy and the formation of a fresh anastomosis; (3) partial gastrectomy; (4) undoing the gastro-enterostomy and restoration of the normal channel if necessary by a plastic operation. Of these methods, the last was considered to hold out the best prospects of a permanent cure.

Mr. J. GRAY CLEGG (Manchester) read a paper on

Visual Fields in Lesions of the Nervous System.

Of 20,000 private patients he had charted the fields of some 900 individuals—i.e., about 4·5 per cent. of all patients. He showed slides illustrating the visual paths and centres, and charts of the defects noted in papillœdema, in primary optic atrophy and retrobulbar neuritis; also diagrams of the result of trauma of the optic nerve, of which two showed entire loss of an altitudinal half of the field, one a central absolute, and another a paracentral absolute scotoma. Mr. Clegg described various effects of pituitary disease and showed hemianopic fields; those of right-sided loss were associated with mind-blindness in one and word-blindness in two. Quadrant anopsia occurred twice in this series of cases. He had also come across one case of hemichromatopsia and word-blindness. Another remarkable field presented a small remaining central area of sight after a left hemianopsia in 1903 and a right hemianopsia in 1911. An interesting case was that of a patient with inferior altitudinal hemianopsia affecting both fields, and another illustrated the changes in a case of tumour of the left auditory nerve. Lastly, the peculiarities of fields of vision in the psychoneuroses were exhibited.

BRISTOL MEDICO-CHIRURGICAL SOCIETY.

A MEETING of this Society was held on March 8th, with Mr. C. H. WALKER in the chair. The President and members of the Bristol and District Section of the Western Counties Branch of the British Dental Association were present by invitation.

Mr. W. R. ACKLAND opened a discussion on

Oral Sepsis.

He said he had been slow to accept oral sepsis as a common cause of systemic disease. A personal experience had, however, led him to do so, in spite of the fact that so many people had septic mouths without any obvious ill-effects. He illustrated his remarks with X rays showing deep-seated dental sepsis, and said that for the detection of death in a tooth transillumination with an electric mirror was of more value.

Mr. ROBERT WILLCOX gave an analysis of his private cases seen between 1900 and 1904 and followed up for 15 years. These led him to contrast caries and pyorrhœa, rather than to connect them; since the two did not coincide either as to particular patients or as to their general incidence in the different portions of the mouth. In his view the cleaning of teeth did not prevent caries.—Dr. J. O. SYMES also gave an analysis of his private notes, saying that of the three diseases most often said to arise from dental sepsis—fibrositis, rheumatoid arthritis, and pernicious anæmia—the first alone had been proved by his experience to own such a causation.—Dr. J. A. NIXON argued, from his war experience, that incipient scurvy was a common ætiological factor of oral sepsis; and that many of the symptoms often regarded as results of oral sepsis were in fact scorbutic.—Dr. J. R. CHARLES thought that examination of the stools in oral sepsis might show that bacteria were swallowed. He quoted a case of myocardial disease associated with a septic mouth.—Dr. P. WATSON-WILLIAMS thought nasal infection equally important as a cause of systemic disease, and said that in both it was probably true that the less obvious the inflammatory reaction at the site of entry the more complete and damaging that entry was.—Dr. J. M. RUTHERFORD gave reasons for believing that oral sepsis was a contributory cause in many cases of chronic insanity, and said that a dental surgeon should be attached to the staff of every mental hospital.—Dr. R. G. GORDON described three cases in which relief to psychoneuroses had followed treatment of oral sepsis.—Dr. J. C. MACWATTERS said that about 70 per cent. of people over 15 had, in his experience, shown signs of pyorrhœa. He had given an extensive trial to vaccine treatment, but did not think it could effect a lasting cure.—Mr. F. RICHARDSON CROSS said that it was always advisable to treat oral sepsis prior to operations on the eye, particularly for removal of cataract.—Mr. L. E. CLAREMONT quoted cases of iritis and brachial neuritis in which recovery had followed treatment of oral sepsis.

SOUTH-WEST LONDON MEDICAL SOCIETY.

Dyspituitarism, Infantilism, and Obesity.

A MEETING of this Society was held on March 8th, with Dr. E. J. PRITCHARD in the chair.

Dr. H. L. TIDY made a communication on this subject. He referred briefly to the anatomy and development of the pituitary body and proceeded to discuss the functions of the secretions of the anterior and posterior lobes deduced from the results of injections of extracts, experimental removal of portions of the gland and clinical observations on the subjects of disease. He gave a review of the symptoms which occur in diseases of the pituitary gland, based on Cushing's classification of neighbourhood symptoms, general pressure effects, secretory symptoms, and evidences of polyglandular syndromes. The various clinical entities were then considered with special reference to gigantism, acromegaly, dystrophia, adiposogenitalis, cerebral adiposity, infantilism, and polyuria and diabetes insipidus.

Reviews and Notices of Books.

MENTAL AND SCHOLASTIC TESTS.

Report by the Education Officer of the London County Council, submitting Three Memoranda by Mr. CYRIL BURT, M.A., Psychologist, on Mental and Scholastic Tests. London: P. S. King and Son, Ltd. 1921. Pp. 432. 21*s*.

IN a short preface to these memoranda, Sir Robert Blair justly describes Mr. Burt as "one of the greatest living authorities" on mental tests. There can be little doubt that this volume will for many years be the standard book on the subject written in England, although Mr. Burt himself would be the first to insist on the ephemeral character of his work. Much labour has been expended in the preparation of these memoranda. A new arrangement of the Binet-Simon scale—including all the orginal 1908 and 1911 tests, 65 altogether—is presented, based, as regards its age-grading and standardisation, on the examination of over 2000 normal and 700 mentally deficient children. Then follows a series of graded tests adapted to the discovery of supernormal capacity, with tables indicating the probable success to be expected at different ages. And the last memorandum contains a complete set of scales for educational testing—reading for speed, accuracy, and comprehension, spelling, dictation, mental and written arithmetic (mechanical and problematic), writing, drawing, and composition. For these the final trials were made upon 5000 normal, and 1500 defective children.

In view of Mr. Burt's assiduity in endeavouring to make the Binet-Simon scale as perfect an instrument for its purpose as possible, it comes somewhat as a surprise to find that he devotes a large part of his second memorandum to a demonstration of the very small value of the tests either collectively or individually. Some of them he characterises as "worthless," and he criticises Terman for retaining them, while doing so himself. His further proof by statistical methods that over 50 per cent. of an examinee's success in the scale is due to school instruction and only 33 per cent. to intelligence, serves to confirm the impressions of all who have practical experience that the term "intelligence tests" applied to them in so much of the literature of the subject is a misnomer. Mr. Burt justifies his adherence to the Binet-Simon scale, partly on grounds of comparison of results with those of other workers, but chiefly because the work of constructing an ideal scale is one that will require years of research and the coöperation of many workers. For scientific purposes he says that a new series of scales is required, "built up afresh from the very foundation." "While waiting for the slow and sure," he argues, "we must make shift with the rough and ready." And for the discrimination of the special school child from others, and for the grading of special school children, he considers the Binet-Simon scale "tolerably successful." He criticises Terman's "Stanford revision" which is now very widely used in England, chiefly because his amendments of the original scale are not sufficiently radical, especially in the pursuit of the principle of "internal grading"—a principle which Mr. Burt regards as essential to all future scales. Many will regret that Mr. Burt has not embodied the best of Terman's and other neo-Binet scales in his own version, but they will anticipate with much interest the adaptation which he is now undertaking of the Stanford scale for use with English children.

In attempting to fix a border-line between the defective and the normal, Mr. Burt is more practical than scientific when he suggests that the fixing of a standard must be according to the available accommodation in special schools. If, for example, an area has provided special schools for 1½ per cent. of its child population, then an I.Q. or "mental ratio" of 70 per cent. will be the upper limit of deficiency. He makes no reference, however, to a lower limit. But there is obviously a lower limit of educability in special schools (particularly day schools)—a limit which in practice varies greatly—and from the point of view of accommodation, the fixation of a lower limit is an obvious preliminary to that of an upper limit. Moreover, as Mr. Burt does not fail to remind us, "the mental age or ratio is but one of many symptoms to be weighed before a case can be finally rated as either normal or defective." He raises a further point whether children classed as defective during their school career only, not, that is, recommended later for institutional care, should be stigmatised in this way at all; this difficulty may be overcome when better provision is made for the education of dull and backward children, for a proportion of the higher-grade types now in special schools might then be educated in such special classes in ordinary schools. This would lower the upper intelligence limit for special schools, but would prevent the inexcusable blunder of sending to special schools cases that are later found fit to return to ordinary ones, and would make it less difficult for the higher grades of defectives to obtain employment on leaving. The stigma of the "special school" is often a serious one for children whose after-career is not limited by the walls of an institution.

Many interesting side-lines are suggested in the memoranda, such as:—Mr. Burt's studies of the influence of sex and social grade on test results, his investigation of the mentality of juvenile delinquents, his note on the relation of left-handedness to the neurotic temperament, his indications of the analysis necessary to determine why a child is backward in one subject—incidentally he is sceptical regarding congenital word-blindness—and his discussion of the psycho-analytic possibilities that may lurk in a child's composition or in his mistakes in reading. Mr. Burt's chief object has been to indicate the lines on which the discrimination of the defective from the normal (so far as intelligence is concerned) can be attempted, and from this point of view these memoranda will be invaluable to the certifying medical officer. The latter cannot be expected to carry out a full examination in the time usually available; but this book will assist him to assess the relative values of the individual tests for his purpose. In the second memorandum will be found the scientific basis upon which the construction of the scale, as indeed of any scale, depends, furnishing a better grasp of the real significance of the tests. The educational tests of the third memorandum will be found serviceable by all examiners. The whole book is the most exhaustive discussion of the subject we have seen, and will be of interest to all concerned with education.

AGRICULTURAL AND INDUSTRIAL BACTERIOLOGY.

By ROBERT E. BUCHANAN, Professor of Bacteriology in the Iowa State College of Agriculture. London and New York: D. Appleton and Co. 1921. Pp. 468. 15*s*.

THE book is written to supply students of agriculture with information on those "bacteriological topics fundamental in every-day life on the farm and in the industries." By excluding all descriptions of technique and practical methods generally, the author has been able to include a wide range of bacteriological divisions and to convey successfully the essential elementary information dealing with industrial bacteriology. No references are given and the names of authorities responsible for the facts mentioned are very rarely quoted; this makes the book easy to read but is a disadvantage if more extended information is sought. We have found it generally accurate, but the author is sometimes quite unduly cautious in his statements. For example, it is surprising to read, "scarlet fever and diphtheria have apparently in some cases been transmitted through milk," while as regards septic sore-throat outbreaks, he seems only prepared to state that in some cases "it is possible that it has been transmitted from animals suffering with inflammation of the udder (mastitis)." In

these and other sections dealing with pathogenic bacteria the text suggests far less familiarity with this subject than with matters of purely agricultural or industrial interest. In classification of bacteria the author follows the recommendation of the Committee on Nomenclature of the Society of American Bacteriologists, not usually adopted in this country. The sections on agricultural and industrial bacteriology are clearly written. The chapter on the yeasts is, however, inadequate for a book of this scope and in view of their importance, while the description of alcoholic fermentation by yeasts reads as if the chemical changes were simple and direct, which they are not. A useful account is given of the bacteria in the soil, while the chapter on the action of enzymes repays perusal. The chapter dealing with the decomposition of organic nitrogenous compounds is very short, but is up to date and covers essentials.

The section on micro-organisms and disease is compressed into 154 pages, and in this space only an elementary account is possible. While many of the organisms discussed are associated with animal or plant diseases it is difficult to reconcile the association of others with either industrial or agricultural bacteriology. It is to be doubted if these meagre descriptions, for example, of the diphtheria bacillus (even if it is re-labelled as *Corynebacterium diphtheriæ*) or of the organism of enteric fever or cholera are really of much service. This side of bacteriology is so well treated in special text-books that it might well be omitted from books of this character, the additional space being devoted to subjects more closely related to the branches of bacteriology indicated by the title.

No branch of bacteriology can be studied alone without detriment; and for those whose work brings them into contact with the medical aspects of the subject, but who wish to have a general idea of what has been done in other branches, this volume can be safely recommended as a reliable guide.

THE CAUSATION OF SEX IN MAN.

Third edition. By E. RUMLEY DAWSON, L.R.C.P., M.R.C.S. London: H. K. Lewis and Co., Ltd. With 22 illustrations. Pp. xii. + 226. 7*s.* 6*d.*

IN the preface to this work, written by the late author's wife, it is stated that the third edition "is now published as his last presentation of a theory to the study of which my husband had devoted himself." There is not much alteration from the second edition, but the whole shows a praiseworthy interest in the great subject attacked. The evidence adduced is mainly clinical; it would have been interesting to have had Dr. Dawson's views on the Mendelian position with regard to the determination of sex. A search of continental literature would likewise reveal things hard to reconcile with the alternate ovulation theory; but also, no doubt, other points in harmony therewith.

MATERIA MEDICA AND PHARMACY.

Guide to Assistant's Examination in Materia Medica and Pharmacy, Apothecaries' Hall. By GWYNETH PENNETHORNE, Registered Assistant, Society of Apothecaries. With Preface by P. A. ELLIS RICHARDS, F.I.C., F.C.S. London: Baillière, Tindall and Cox. 1921. Pp. x. + 266. 6*s.*

THIS small handbook, which is well arranged and clearly printed, has been prepared with a view to lessening the labours of students preparing for the Assistant's Examination, Apothecaries' Hall. It deals successively with the chemical inorganic materia medica—the acids being treated as a separate group—organic materia medica, and lastly gives a brief summary of pharmaceutical processes, lists of Latin terms, weights and measures, doses, and antidotes to poisons. Considered as a whole, the information given is accurate, but in many ways the attempt to compress the reading matter has led to inadequate description, and in several of the crude drugs essential features have been overlooked. The paragraphs in question will need revision when a second edition is called for. The book will probably serve a useful purpose in aiding the student rapidly to survey the whole of the work covered by the syllabus when making a final revision before examination.

HISTORY OF MEDICINE.

An Introduction to the History of Medicine. Third edition. Revised and enlarged. By FIELDING H. GARRISON, A.B., M.D., Lieut.-Colonel, Medical Corps, U.S. Army. London and Philadelphia: W. B. Saunders Company, Ltd. 1921. Pp. 942. 42*s.*

THIS, the third edition of Colonel Garrison's admirable book has been enlarged and brought up to date by the inclusion of the medical and surgical aspects of the late war. The notable triumph of that war from the medical side was the victory over infectious diseases. It was the first war in history where the mortality from battle casualties exceeded those from communicable diseases. When a fourth edition is published, there should be included in the medical bibliography a notice of Sir Norman Moore's monumental history of St. Bartholomew's Hospital and one also of Dr. E. G. Browne's FitzPatrick Lectures on Arabian Medicine. Otherwise we have nothing to add to what we have said about the two previous editions of the book—namely, that it is the best introduction to the history of medicine at present existing in the English language.

A BOOK OF SURGICAL NURSING.

By RALPH COLP, A.B., M.D., Instructor in Surgery, Columbia University; and MANELBA WYLIE KELLER, B.S., R.N., Formerly Operating Sister, St. Luke's Hospital, New York. New York: Macmillan Co. 1921. Pp. 453. 16*s.*

FEW books deal adequately with the nursing of surgical cases, whereas there is no branch of nursing to which more importance is attached in practice, and the book before us contains so much valuable information and thoughtful comment on all branches of surgical nursing, treatment, and technique as to make a wide appeal not only to nurses but also to medical students. The chapters on special treatments are specially helpful, although more stress might have been laid on the importance of quick observation of complications following anæsthetics before the patient has recovered consciousness. The signs of severe shock and hæmorrhage must be watched for with especial vigilance, since the time factor is of vital importance in their detection.

The combination of a surgeon and a nurse in authorship is an assurance that all aspects of the subject receive due consideration, and on the whole the result of their joint labour deserves the highest commendation. The illustrations are excellent.

UNNOTICED LONDON.

By E. MONTIZAMBERT. London: J. M. Dent and Sons, Ltd.; New York: E. P. Dutton and Co. 1922. With 24 illustrations. Pp. 222. 4*s.* 6*d.*

Miss Montizambert and her publishers have had a happy idea in the issue of this short and interesting series of chapters on London. The title "Unnoticed London," taken in connexion with the contents, might suggest that the book is intended to meet the needs of foreigners or countrymen sojourning in the metropolis with but brief opportunity for taking notice of their environment; but a larger reading public than this may be anticipated. For the most part the author deals with streets and buildings which it ought to be unnecessary to introduce to the Londoner; but as a matter of fact few Londoners know London, while some of those who know London best can make but short stays in the city with which they are uncannily familiar.

The book is arranged in a series of short chapters which suggest walks, and no better advice can be given to those who wish to see beautiful things, historical monuments, or vivid reminiscences of the past than that they should follow the author's order of arrangement and take the things which she selects for their

inspection as the objects for a series of short tours. While following the trails that she lays down, many things will be seen en route for which she has not found space in her commentaries: for these are brief, though so many-sided. Indeed, a well-earned compliment may be paid her for sense of perspective and proportion. No guide-book which is also a handbook can be of any service to the stranger making a limited visit to a hundred square miles of compressed history; but those who perambulate the metropolis on foot, in accordance with Miss Montizambert's instructions, will get a remarkably good impression of the one great city in the world that has never been sacked; and we shall be surprised if the interests created do not lead them to seek more detailed information along many directions.

FIRST-AID X RAY ATLAS OF ARTERIES.

By H. C. ORRIN, O.B.E., F.R.C.S. Edin., Surgeon, Ministry of Pensions Orthopædic Hospital. London: Baillière, Tindall and Cox. 1922. With 9 plates. Pp. viii. + 47. 2*s.* 6*d.*

OUR criticism of Mr. Orrin's X Ray Atlas of the Systemic Arteries of the Body (see THE LANCET, 1920, ii., 654) applies with even greater force to this little book; if X ray photographs may mislead the qualified man who is not specially trained in reading them, the layman studying first-aid may be in still worse case. Under skilled guidance, however, it is possible that the book may serve a useful purpose, since opportunities for a first-aid student to obtain practical knowledge of the anatomy of the human body are meagre. The intention of the author is to demonstrate the relationship of the arteries to the osseous system, in order that the student may gain a more accurate conception of the pressure points. Plates showing respectively the arteries of the upper and lower halves of the body, arm, leg, foot and hand, head and neck, thorax, abdomen, and heart are supplemented by descriptive matter, and certainly give a better picture of arterial distribution than diagrams or any other attempt to illustrate the systems in two dimensions only.

JOURNALS.

BRITISH JOURNAL OF OPHTHALMOLOGY, February and March, 1922.—February number:—Leonard J. Kidd: The Fourth Cranial Nerve. This paper supplements one by Sir John Herbert Parsons published in the December number of this journal. Kidd seeks to prove (1) that the decussation of the fourth nerve is not quite complete so that each nerve contains some uncrossed fibres; (2) that the sixth nerve nucleus gives origin to uncrossed fibres exclusively, all of which pass out in the homo-lateral sixth nerve; and (3) that the mesencephalic trigeminal root is not motor, and cannot therefore form the visceral motor component of the fourth cranial nerve.—H. Herbert: After-treatment of Small Flap-sclerotomy.—F. Arnold Williamson-Noble: Two cases of Thrombosis of a Retinal Vein, one showing a hole, the other a star at the macula.

In the March number:—M. L. Hepburn: Experience Gained from 140 Trephine Operations for Glaucoma. The author refers to the many contributions that have recently appeared in favour of iris inclusion operations, and reminds us that this is exactly what we have been taught to avoid in all other major operations on the eye. He himself is a strong advocate of the trephining operation for chronic glaucoma while recognising its dangers. Of these the late infection does not appear to him to be an important one; far more important being the risk of early infection through a button-hole in the conjunctival flap. Every precaution against this accident should therefore be taken, and if a button-hole should be made another flap must be fashioned—possibly another position for the trephine hole. With regard to the time for operating, the sooner the better when once the diagnosis is definitive. Better results were obtained in these early cases than in those in which the tension was raised at the time of operation, or in which the field was generally contracted within a short distance of the fixation-point. Acute and secondary cases are not suitable for trephining, but for chronic glaucoma the author finds the operation, performed with the precautions outlined, an ideal one.—Dr. Delogé (Nice): The Nature and Treatment of Strabismus. The plea for treatment of strabismus by exercises rather than by operation is not new. There are several methods of reviving simultaneous vision in cases where the image of one eye is suppressed. The author recommends the employment of Rémy's diploscope in cases not only of convergent strabismus, but of divergence due to the unequal refraction of the two eyes. The effect of full correction of the deviating eye is always worth trying. If convergence is made possible by the correcting glass the prognosis is good, as even if the fully correcting glass is not tolerated at first, it can be led up to by partial correction.—J. M. Keys: Glioma Retinæ with report of a case.—J. Gray Clegg: Central Scotoma in Anterior Uveitis. The disease is that frequently described as irido-cyclitis, with the so-called keratitis punctata. Mr. Clegg's observations of central scotoma are important but need confirmation. Some of his cases occurred in moderate smokers, but he satisfied himself that tobacco was not the cause of the scotoma. The view put forward is that the scotoma is due to a toxic influence on the retinal elements at the macula, and secondarily on the papillo-macular band of nerve-fibres—in fact, that a toxic amblyopia may occur apart from the influence of tobacco and associated with irido-cyclitis. In these cases, unlike cases of tobacco amblyopia, the extent to which the two eyes are affected may be very different.

JOURNAL OF LARYNGOLOGY AND OTOLOGY. January and February, 1922. Vol. XXXVII., Nos. 1 and 2.—In the January number Dr. C. G. Coakley, of New York, describes his method of dealing with hæmorrhage resulting from removal of the tonsils by dissection; he condemns severely the practice of disregarding the bleeding, but secures each bleeding point with a hæmostat and ligates it with braided silk tied in a slip-knot and passed down over the hæmostat by means of another pair of forceps. Mr. J. S. Fraser, of Edinburgh, contributes a long and instructive article on the pathological and clinical aspects of deaf-mutism, with a careful description of the microscopical examination of the ears from two cases, one of congenital and one of acquired deaf-mutism; this study is continued in the February number, and has yet to be concluded. Clinical records are given by Dr. W. E. Powell of a fatal case of meningitis following resection of the nasal septum in which, post mortem, latent suppuration was found in the sphenoidal sinuses; by Mr. T. A. MacGibbon (Christchurch, N.Z.) of successful removal of a dental crown from the right bronchus; and by Mr. E. Culpin, of Brisbane, of a case of facial paralysis occurring in the course of acute middle-ear suppuration and recovering without operation.—The February issue contains a review by Mr. G. E. Martin, of Edinburgh, of 14,960 cases of removal of the tonsils at the Edinburgh Royal Infirmary. In 7827 operations between 1914 and 1920 there were four deaths, all, curiously enough, among in-patients and in no case from hæmorrhage, but in each case from broncho-pneumonia or septic absorption. He comes to the conclusion that hæmorrhage following the guillotine operation is almost negligible, provided that no tags of tonsillar tissue are left behind, and that ear complications are so much more common among out-patients as to justify him in discouraging these operations, at least during the winter months, if hospital beds are not available. Mr. B. Seymour Jones, of Birmingham, describes a simple apparatus for intra-laryngeal and intra-tracheal injection of oils for the patient's own use; and Sir James Dundas-Grant supplies a clinical record of a case where suppuration in a subdivision of the maxillary antrum caused severe neuralgia which was cured by operation

Reports and Analytical Records

"LA BIOTHÉRAPIE."

(SEALAND TRADING, LTD., 24, HOLBORN, LONDON, E.C. 1.)

Antityphoid Galled Tablets (Pastilles Antityphiques Biliées).—This preparation has been devised as a means of avoiding the use of the ordinary T.A.B. vaccine inoculated subcutaneously. It consists of a round keratine-coated pill of desiccated bile (0·2 g.), and a flat vaccine tablet containing 0·017 g. of dried *B. typhosus*, *B. paratyphosus* A, and *B. paratyphosus* B with 0·1 g. lactose. One pill and one tablet are to be taken fasting, before breakfast, on three successive mornings. It is claimed that in this way successful vaccination against enteric infection can be obtained without the annoyance of inoculation. Reference is made to a report by Dr. Vaillant to a recent Congress of Hygiene on comparative protective tests made during an outbreak of typhoid in the department of Pas de Calais. The results obtained were held by the Paris Academy of Medicine to authorise the general use of this method of oral administration.

Antidysenteric Tablets (Pastilles Antidysentériques) are similar to the foregoing, except that the keratine-coated desiccated-bile pill is not used. The tablet contains 0·05 g. of dried *B. dysenteriæ* Shiga.

Tuberculous Egg-Prepared Antigen.—This antigen is stated by the manufacturers to have been prepared according to the formula of Prof. Besredka. No reference is given, but we presume that the description given by Dr. Besredka in the *Annales de l'Institut Pasteur* (No. 5 (May), 1921, p. 291) is followed. The sample antigen is accompanied by brief printed instructions for performing the complement-fixation test for tuberculosis. It is a slightly opalescent liquid put up in a 3 c.cm. ampoule, ready diluted for use. This quantity is sufficient for one reaction. The manufacturers state that it may be kept for practically an indefinite length of time.

Sanogyl is a tooth-paste consisting of fluorine salts and neosalvarsan, made up with soap. The manufacturers claim that it has an antiseptic action on both the spirochætes found in the mouth and on the various other organisms associated with pyorrhœa alveolaris or stomatitis. It is put up in the usual type of collapsible metal tube.

Sanoram.—This preparation, like the previous one, is made from a formula by Dr. B. Kritschevsky, of which the active principle again is fluorine. It is claimed that it does not coagulate albumin and is not toxic to phagocytes, but that at the same time it has a bactericidal effect on organisms, including spore-bearing bacteria. The antiseptic is issued in tablets, and forms an opalescent solution with ordinary tap-water.

CANADIAN CLUB WHISKY.

(HIRAM WALKER AND SONS, LTD., WATERLOO HOUSE, CHARLES-STREET, HAYMARKET, S.W. 1.)

This well-known brand of Canadian whisky has previously been noticed in the columns of THE LANCET (Sept. 14th, 1901, and April 18th, 1914). Owing to the necessary compliance with the Spirits (Prices and Description) Order, 1920, the strength of the whisky has been reduced to 30° under proof. The following analytical data were obtained :—

Proof spirit	69·87 per cent. (equivalent to 30·13 under proof.)	
Total extractives	0·07 per cent.	
Secondary constituents—		
Volatile acid (as acetic)	25	Parts per 100,000 of absolute alcohol.
Fixed acid (as tartaric)	45	
Furfural	2·00	
Esters (as ethyl acetate)	20	

This whisky has the flavour characteristic of the Canadian product, which differentiates it from Scotch or Irish whisky. The analytical figures show that it is perfectly pure and normal in composition, and the Excise certificate placed over the capsule of every bottle is a guarantee that the spirit was made in 1911. During and after the war certain spurious whiskies of transatlantic origin were imported into this country, some of which were stated to contain wood spirit. This circumstance has undoubtedly created a prejudice against Canadian whisky. We have carefully examined the "Club" whisky, and can find no trace of wood spirit; consumers may, therefore, be assured of its purity and wholesomeness.

DR. BENGUÉ'S BALSAM.

(DR. BENGUÉ AND CO., 52, CHARLOTTE-STREET, LONDON, W. 1.)

This preparation, which is conveniently put up in collapsible metal tubes, is compounded of menthol, methyl salicylate, and hydrated lanolin, this last material being of special value owing to the readiness with which it promotes cutaneous absorption of the other ingredients. On analysis it was found to contain anhydrous lanolin 35 per cent., and methyl salicylate 13 per cent., the balance consisting of menthol and water. The physiological functions of methyl salicylate and the local anæsthetic action of menthol are well known to practitioners, and the balsam will no doubt be found useful in many cases where it is necessary to relieve pain arising from various forms of neuralgia, hyperæsthesia, acute rheumatism, and gout.

BERNA CONDENSED SWISS MILK, SWEETENED WITH SUGAR.

(BERNA MILK CO., THOUNE, SWITZERLAND. AGENT: MR. J. E. GARRATT, 96, SOUTHWARK-STREET, LONDON, S.E.)

The manufacturers make a special claim for the high content of fat contained in their milk, and this is justified, as it is unusual for the fat in a condensed milk to exceed 9·6 per cent. The other constituents are normal, with the exception of the smaller water content, showing that the concentration has been pushed a little further than in some other well-known brands. It is stated that the product is made from Swiss milk; there is no particular virtue in full-cream milk from one country over full-cream milk from another country, but high-grade milk is more easily and uniformly obtainable in Switzerland.

The Berna condensed milk is a high-class genuine product, and free from any grittiness caused by the separation of the milk sugar in a crystalline condition. On analysis the milk was found to have the composition :—

	Per cent.		Per cent.
Fat	10·0	Lactose hydrate	14·0
Water	23·0	Cane sugar	41·2
Protein*	8·8	Ash	2·0

* Casein and lactalbumin.

SUPEX CHOCOLATE.

(SUPEX, LIMITED, 22, CORK-STREET, LONDON, W. 1.)

The chocolate when analysed showed the following values :—

	Per cent.
Water	0·4
Total ash	1·4
Water-soluble ash	0·62
Alkalinity of soluble ash as K_2O	0·3
Cocoa butter	35·3
Cane sugar	46·5
Protein	5·6

The dry fat-free cacao matter in the sample was 18 per cent. The chocolate is entirely free from cacao "shell" and added starch, while the alkalinity and the ratio of soluble to total ash show that no alkali has been used in its preparation. It may be added that Supex chocolate is a high-grade product, particularly soft and smooth to the palate, and showing evidence of careful grinding and skilled preparation. It is quite free, too, from the mysterious defect of "bloom," so often met with.

MANCHESTER SKIN HOSPITAL.—During the year 12,356 out-patients received treatment, the average weekly attendance being 1318. The in-patients numbered 388. The attendances in the X ray department show a decrease of nearly 3000 over the number in 1920. A total of £2288 was contributed by the patients. There was, however, a deficiency of £350 on the year's working.

THE LANCET.

LONDON: SATURDAY, MARCH 25, 1922.

Immunity Against Measles.

In the decade 1909–1919, the average death-rate in England and Wales from measles per million persons living was 877, ranging from 1398 per million in 1915 to 298 in 1919. The vast majority of deaths occurred in children under 6 years old, and in the lower classes. A comparison of the death-rate among the rich and poor undertaken in Vienna for the years 1891 to 1900 gives the death-rate from measles as 11 per cent. of all deaths in the poorer quarters, and 0·55 per cent. in the wealthy districts. In Hamburg from 1901 to 1910 the death-rate was 6·4 per cent. and 0·5 per cent. respectively. In Vienna, from 1907 to 1910 more deaths occurred from measles than from scarlet fever, diphtheria, and whooping-cough together, and those were not so-called measles years. In 1912, which was a measles year, the deaths exceeded those from scarlet fever, diphtheria, whooping-cough, and puerperal fever taken all together. And yet measles is still popularly regarded as a harmless malady. Hospital accommodation with skilled attention is provided for scarlet fever and diphtheria, whereas measles is, from lack of accommodation, refused admission into the fever hospitals. Far too little importance is attached to this disease, and the patients are left to be nursed at home, where, among the poorer classes, the services of a medical attendant are often dispensed with, until fatal complications have set in and all skill is too late. The analysis of the figures for the rich and poor well illustrates that the high death-rate is due to poverty and lack of skilled attention. Compare the figures for England and Wales, given above, with those for the death-rate from small-pox before vaccination was introduced. Before 1796, 420 deaths per million persons living (or less than one-third of the deaths from measles in 1915) were due to small-pox, and the disease was dreaded throughout the population. The introduction of vaccination by JENNER in 1796 was an epoch-making event in the history of preventive medicine, and the practice of it has practically wiped out the disease, without belittling the accompanying influence of improved sanitation and habits of life.

It seems that we may be on the eve of a similar turning point in the prevention of measles. JENNER's method of producing immunity was to introduce the serum of a patient suffering from a mild form of small-pox, or cow-pox, into the individual to be protected. Dr. RUDOLF DEGKWITZ[1] has found it possible to confer immunity by the injection of serum from a patient convalescent from measles. Until animal serum was introduced, human serum was used for the purposes of vaccinia, and vaccination was carried out from one child to another. By a process of analogy, we have every reason to hope that the human serum at present used by Dr. DEGKWITZ, which he naturally finds difficult to procure on a large scale, will be before long replaced by an animal serum that can be produced on any scale required. DEGKWITZ is not the first to suggest serum immunity for measles. RICHARDSON and CONNOR[2] report experiments on nine children in active and passive immunity, the active being produced by rubbing the tonsils and pharynx of the child to be protected with a swab taken direct from the pharynx of a case of measles, and the passive by intramuscular injections of the serum of a patient convalescent from measles. Six children were treated by passive immunity, and were all protected, while three were actively immunised, of whom two were protected and one had a doubtful abortive form of measles. HIRAISHI and OKAMOTO[3] reported their experiments on active immunisation in 1921, using blood taken from a severe case in its early acute stage as the immunising agent. They vaccinated children with increasing doses of infected blood, the doses being small enough to produce no symptoms, and found that the resistance to a subsequent morbid dose of the same infected blood was increased. This artificial immunity did not give absolute protection against a natural infection, but only a comparative resistance. Similar experiments on active immunity in typhus and scarlet fever are reported in THE LANCET.[4] Dr. J. D. ROLLESTON, in the March number of *Medical Science*, reviews the literature on this subject up to DEGKWITZ's latest article in which he reaches more definite conclusions, based upon the inoculation of more than 1700 children, with the results given below. The prodromal stage of measles, before the initial rise of temperature and malaise make their appearance, is highly infectious, and it is impossible to isolate infected cases early enough to prevent the spread of the disease. By the time the diagnosis is made, all the children who have been in contact with the patient may have been infected. DEGKWITZ has proved that by inoculation of a small quantity of serum derived from a convalescent, all the contacts can be protected completely or to such an extent that they only develop the disease in its mildest form. [He calls the serum M.R.S. (Masern-rekonvaleszenten-serum), and is careful to exclude syphilis or tuberculosis in the donors.] The success of the inoculation depends upon (*a*) the time in the prodromal stage when it is applied, and (*b*) the amount of serum injected. The earlier in the incubation period the child is inoculated, the smaller will be the dose necessary to protect him, and vice versa, until a stage is reached when if the inoculation is postponed too long, no amount of serum will produce immunisation. Up to four days from the date of infection, 2·5 c.cm. M.R.S. is sufficient to protect a child under 4 years of age from that infection. This dose DEGKWITZ calls the unit of protection (SchE. Schutzeinheit). On the fifth to sixth day, 5–6 c.cm. (2 SchE.) will be necessary. On the seventh day much larger doses will not afford certain protection, and on the eighth day, inoculation is useless, as even enormous doses, 30 c.cm., neither prevents the onset nor influences the course of the disease. Experience, according to DEGKWITZ, shows that the usual incubation period is four days, and thus applying the rules given above, he advises the following routine: A doctor is called to a case showing a fresh commencing rash on the face and arms, and children who have been with him are found in the house. These contacts should be immediately inoculated with 2·5 c.cm. M.R.S. and they will certainly be protected. If the rash is already 24–48 hours old, 5–6 c.cm. (2 SchE.) must be used to protect the other children. In both cases the immunised children may safely be allowed in the room with the patient. If the rash is 72 hours old 3 SchE. should be given, and about two-thirds of the children will in all probability be protected.

No case of untoward effects of inoculation has been observed in DEGKWITZ's series. He has practised the inoculation in private families and in children's institutions, where previous epidemics had

[1] Deutsche medizinische Wochenschrift, Jan. 5th, 1922.
[2] Journal American Med. Assoc., 1919, 72.
[3] The Japan Medical World, Oct. 15th, 1921.
[4] THE LANCET, 1921, ii., 386, 645.

shown that out of 100 children exposed to measles more than 90 would certainly contract it. With the exception of two or three failures, the results have been uniformly good, within the limits that he states. The question of the duration of the immunity is still uncertain; 33 days is the shortest observed, but more than a year has been reached in other cases. DEGKWITZ finds that the earlier in the incubation period the inoculation is carried out, the shorter the duration of the immunity, and vice versa, the production by the patient of an active immunity, increasing during incubation and being strengthened by the passive immunity conferred by the serum. But, so far, insufficient experiments have been carried out to elucidate the conditions and factors influencing the prolongation of immunity. It is specially important to immunise children who are already weakly from some other disease, such as rickets, tuberculosis, or whooping-cough, and not to forget the fat, pasty child, for these are the children who run the greatest danger from measles.

Comparative Pathology.

THE report of the Advisory Committee on Research into Diseases in Animals, which has been awaited with a considerable amount of anxiety by comparative pathologists throughout the country, has failed to provide recommendations of a sensational nature. On the other hand, those who are genuinely interested in the subject of research into diseases of animals cannot fail to be satisfied with the findings of the Committee, inasmuch as the most important of the disabilities suffered by comparative pathologists during the past 20 years have received dispassionate consideration at their hands, and there is, therefore, some hope that in the future reasonable facilities for the investigation of diseases in animals may be forthcoming. The Committee, which sat under the chairmanship of Sir DAVID PRAIN and included among their members Prof. O. C. BRADLEY, Capt. W. E. ELLIOT, Sir WALTER FLETCHER, Sir WILLIAM LEISHMAN, Sir JOHN MCFADYEAN, and Prof. C. J. MARTIN, were appointed to report on the facilities now available for the scientific study of the diseases of animals, to indicate what extension of those facilities is desirable in the immediate future in order to advance the study of disease whether in animals or man, and to advise as to the steps which should be taken to secure the aid of competent scientific workers in investigating disease in animals.

In their report, which is largely unanimous, the Committee deplore the fact that the five veterinary colleges which should occupy a place in relation to veterinary research, similar to that enjoyed by medical schools and hospitals in regard to medical research, received in the year 1920–21 a State subsidy amounting to only £3696 for research purposes. In view of the position held by this country in the stock-breeding world, and of the significance of veterinary research to science generally and to medical research in particular, the size of this grant is pungently but truly called a national disgrace. It renders impossible the proper payment of workers, the provision and maintenance of laboratories, and the prosecution of inquiries in the field. £1996, or more than one half of the total amount available, was granted to the department of the Royal Veterinary College, London, to which the name Research Institute in Animal Pathology has been given. Of this sum, £1556 was for salaries and wages, and the remaining £440 for the cost and keep of animals, apparatus and chemicals. The Veterinary Department in the University of Liverpool receives no specific State aid for research. At the Edinburgh Veterinary College six rooms in the new buildings were intended for laboratory work, but owing to lack of funds it has been found impossible to furnish and equip them. In 1917, with the help of a small grant from the Board of Agriculture for Scotland, an attempt was made to create the nucleus of a research staff and laboratory equipment for work on certain sheep diseases, but the two research workers appointed were almost immediately called up for military service. At the Glasgow College the staff consists of the principal, a research assistant, a trained laboratory assistant, one boy, and a man who devotes part of his time to looking after the animals used for serum production. Premises for field experiments are hard to find. From 1918 to 1920 a maintenance grant of £450 was allotted to this College. For the year 1920–21 an additional sum of £1250 was granted, of which £300 was for the salary of a qualified research assistant. At the Royal Veterinary College of Ireland there is laboratory accommodation but no regular research staff. No general maintenance grants earmarked for research are received from the State.

Nevertheless, during the past ten years an enormous effort has been made by these institutions to carry out research work of national importance with scant support. The Committee suggest that immediate steps should now be taken towards the creation of a research cadre by admitting to the scale of salaries adopted in the case of other workers in Agricultural Research Institutes, and to the benefits of a superannuation scheme, workers of proved capacity in the Institute of Animal Pathology at Camden Town. They recommend, also, that steps should be taken to increase the annual maintenance grant of this Institute. Further, that since the existing laboratory accommodation at the Institute of Animal Pathology attached to the Royal Veterinary College, London, is inadequate, they propose that financial assistance should be forthcoming from the development fund for the construction of new laboratories at the earliest practicable date. The appointment of a Diseases of Animals Research Committee of not less than seven or more than ten members, to be chosen for their personal qualities and for their special knowledge, and not as representing any particular institutional or geographical interests, is obviously a wise suggestion. If the best interests of the State are to be served the method of application and of allocation of financial aid should be governed by the widest and most impartial principles. Since a large part of our knowledge of human medicine, whether curative or preventive, is based upon animal research or upon the use of scientific methods identical with those employed in veterinary science, such financial aid will be repaid to the State multifold.

The Medical and Dental Registers.

THE Medical Register, which has reached us two months earlier in the year than did its predecessor, in spite of the extra work imposed on the Registrar and his staff by the Dentists Act, contains 45,408 names. During the year 1921, 1760 names were added to the list by registration, an easy record, the highest previous entry being 1526 in 1915. In the Colonial List 323 names were added and 12 names in the Foreign List. The two latter are printed separately at the end of the volume, being distinguished by coloured edges to the leaves, but as the Colonial List now forms 4·34 per cent. of the whole Register it is becoming increasingly unfortunate that it cannot be incorporated in the alphabetical arrangement of the body of the book. The separation impedes reference, the names can easily be overlooked,

and the casual searcher gains the impression that the qualification registered is of a different quality or standard, which is, of course, not the case. We hope that the matter may be rectified when next the Medical Acts come up for revision in Parliament, for it is just such insularities as this which stand in the way of complete professional reciprocity with the self-governing Dominions. In the table of registrable degrees are now included the M.B., B.Ch. of the three universities in the Union of South Africa. The Medical Register contains the full text of the Dentists Act, 1921. The Dental Register, which is presumably issued for the last time by the General Medical Council, contains 5831 names, 277 having been added by registration during the year 1921. Here the pages are frankly headed "United Kingdom Dentists," "Colonial Dentists," and "Foreign Dentists," although a number of these so-called colonial dentists have long been practising in London and provincial towns. One wonders whether the holder of an English dental diploma practising in Sydney is described as an "English Dentist." The Dental Register also contains the text of the new Dentists Act, along with the names of the Dental Board, but not the Dental Regulations, which have appeared since the volume went to press. A notice on the title-page states that after the publication of the names in the printed Dentists' Register, the Register alone is the legal evidence of registration. Three pages of warning notices are printed identically in the two Registers, Medical and Dental. The list of Medical and Dental students registered during the year 1921 contains the names of 1808 medical students—who entered respectively in England, 833; in Scotland, 602; in Ireland 373—and the names of 371 dental students; the numbers in each case being less by one-quarter than those for the preceding year.

INDIAN SCIENCE CONGRESS HANDBOOK.

WE publish in this issue of THE LANCET a brief account of the Indian Science Congress held at Madras from Jan. 30th to Feb. 4th; we have recently received a copy of the excellent handbook prepared under the direction of Captain CLIVE NEWCOMB, I.M.S., one of the local secretaries of the Congress, and issued in order to provide members of the Congress with information of interest concerning the city of Madras and its immediate surroundings. Seventeen short articles, each the work of some official or scientific authority qualified to deal with special points, are contained in the handbook; no complete guide has been aimed at, but the subjects range through the history, archæology, anthropology, zoology, and geology of the Presidency, besides including matters of medical and public health interest. Lieut.-Colonel F. F. ELWES, I.M.S., principal of the medical college, writes of Medical Education in Madras, tracing the history of the medical school from its opening in 1836; in 1851 it became a college, securing affiliation to the University of Madras in 1877, and it is now the leading institution for medical education in the Presidency, with seven departments—three of which are for post-graduate training—containing upwards of 550 students. Major J. CUNNINGHAM, I.M.S., director of the King Institute, describes the institution, which was opened in 1903 as a lymph depôt for the supply of the Presidency alone, but which is now one of the three large provincial laboratories in India. It is divided into a vaccine section, manufacturing lymph for vaccination against small-pox, and a microbiological section, which deals with laboratory diagnosis and treatment and with public health work. Under a separate heading Major CUNNINGHAM discusses the chlorination of the Madras water-supply. A map of the city adds to the value of this interesting little handbook.

Annotations.

"Ne quid nimis."

THE HEALTH OF THE INDIGENOUS RAND MINER.

DURING the recent disturbances on the Rand the native mine labourers appear to have maintained an attitude of neutrality in spite of considerable provocation. This may be in part due to their appreciation of the conditions of work, pay, and leave open to them and to confidence that the Government will protect their interests. The Native Labour Regulations are indeed the subject of earnest consideration on the part of General Smuts's Government, and are constantly being amended and revised. Elaborate precautions are taken to maintain the health and general welfare of the native miners. The concrete sheds which form the compounds are kept very clean; every native has his own berth and usually a tin trunk for his personal belongings, and plenty of hot water is available. On nearly every mine there are whole-time medical officers whose duty it is to superintend the health of the native workers and to treat those reporting sick; incidentally the Mine Medical Officers' Association, though of fairly recent formation, is one of the most active of the medical societies of the Transvaal. The nursing in the local native hospitals is done by male attendants, and in some hospitals an attempt to train Kaffir girls as nurses is apparently meeting with success. Workers are medically examined on application for a job and periodically during their stay on the mines, with special regard to early pulmonary signs. It is obvious that even from the purely commercial and recruiting point of view it pays better to keep the native in good health and spirits than to replace or compensate him for disease or injury acquired at his work.

Probably the most important factor in the contented state of the native worker is the attention devoted to his diet. The official minimum ration scale is constantly being amended and improved in the light of new knowledge on dietetics. The scale in use since December, 1920, is comparable with that usually recommended for Europeans doing hard work as regards its essential constituents, while some of the food-stuffs, such as the mealies, peanuts, and native beer, are a direct concession to the habits and prejudices of the natives. Hot coffee, with a ration of bread, is issued to the morning shift before they go down the mine, and on their return they have an ample hot meal consisting of meat and vegetables; a special warning is issued against the custom—convenient in practice—of keeping the latter for long periods in steam-heated cauldrons. Dr. Marion Delf records this week (see p. 576) the results of experimental survey of available local foodstuffs for their antiscorbutic value, and her paper is in itself a proof of the vigilance with which the interests of the native workers are watched and opportunities seized of investigating prophylactic health measures. Dr. Delf's visit to South Africa, undertaken for other purposes, happened to coincide with an outbreak of scurvy in the mines, and on the representations of Dr. A. J. Orenstein, the superintendent of the Sanitation Department of the Central Mining group, Dr. Watkins-Pitchford invited her to prolong her stay in order to carry out investigations at the South African Institute for Medical Research. The problem set before her was the selection from the foodstuffs available a cheap antiscorbutic which could be distributed without difficulty and which was sufficiently palatable to be consumed without supervision. The solution apparently varies with the seasons, as will be seen from her report. The quince grows so luxuriantly in the Transvaal that it is surprising that no attempt was made to estimate its antiscorbutic value. This fruit is not included in the comprehensive list of substances containing vitamin C,

furnished by H. C. Sherman and S. L. Smith in their recently published work,[1] and there is no indication that it has ever been tested. Besides being of practical local importance, Dr. Delf's results include points of remarkable interest—for example, her observation that soya beans, unlike all other germinating pulses so far tested, have no perceptible antiscorbutic value. Whether this singular fact can be connected with the high fat and almost negligible carbohydrate content of the soya bean, involving a high energy value, further investigations will doubtless show. Her indifferent results with cane sugar experiments may point to excess of carbohydrate as a predisposing factor to scurvy; according to some observers this is true of rickets. Moreover, the fact that natives at work on the mines, who receive a rich varied diet, appear to need more antiscorbutic than those who for considerable periods live on dried maize in their kraals is a matter of some interest.

EPITHELIOMA OF THE SKIN.

IF ever the problem of cancer—that curious and insidious transition from physiological to pathological cell-growth—is solved, it will surely be by the study of cutaneous tumours, for in the skin we can trace the pathological changes in their earliest stages. Dr. Jean Darier's profound knowledge of cutaneous histopathology, and his exhaustive studies during the past 30 years of the various tumours of the skin, are familiar not only to his confrères in dermatology, but also to pathologists throughout the world, and thus his illustrated lecture on epithelioma of the skin, delivered last week to the Section of Dermatology of the Royal Society of Medicine, was largely appreciated. After briefly alluding to the experimental production of cancer of the skin by excessive doses of the X rays or radium and by the continued application of substances such as tar, Dr. Darier pointed out that the different types of cutaneous epithelioma differ very markedly in their radio-susceptibility. Thus, whereas basal-celled carcinoma is extremely radio-sensitive, the prickle-celled growths are radio-resistant; and it is possible that when the explanation of this physical fact is forthcoming we may have made some advance not only in the prevention of cancer, but also in our search for its essential cause. Apart, however, from the two main types of epithelioma of the skin: (1) the malignant prickle-celled carcinoma, characterised by the presence of keratinised cell-nests, rapid growth, involvement of lymphatic glands and other organs, and radio-resistance; and (2) the basal-celled carcinoma, characterised by the absence of cell-nests, slow growth, local malignancy, non-involvement of glands, and radio-susceptibility, Dr. Darier laid stress on the occurrence of "metatypical" forms to which he has recently devoted much attention. Of these there are two kinds, one in which the cells of the growth are intermediate between the prickle-celled and the basal-celled types, and the other in which both types of cell occur. In these metatypical forms cell-nests are seen, but they have a colloid appearance and are not formed of keratinised cells. The growths resemble basal-celled carcinoma clinically, but they are far more radio-resistant, and may eventually become generally malignant, giving rise to secondary deposits. From a consideration of these different forms of epithelioma Dr. Darier insisted on the imperative necessity of differentiating between them by means of histological examination before deciding on the treatment to be adopted. For the prickle-celled and metatypical types early excision is required, since the use of X rays and radium is not only useless and unjustifiable, but may even lead to a more rapid extension of the growth. In the purely basal-celled type he advocates treatment by radium or X rays, with which view several English dermatologists and surgeons will disagree, holding, as they do, the opinion that complete excision is the method of choice when possible.

Dr. Darier's lecture, delivered in French, was a model of descriptive eloquence and incisive reasoning. The lesson we may draw from it is the great importance of early and accurate diagnosis, both from the point of view of treatment and prognosis. In an article entitled Modes de Début des Cancers de la Peau et de la Bouche[1] he emphasised this point, and maintained that few, if any, should die of epithelioma of the skin and mouth, since accurate diagnosis is always possible in the earliest stages, at which time the disease is curable by proper treatment. It cannot be too strongly impressed on students, medical men, and the public that early diagnosis and treatment in cutaneous cancer is of supreme importance, and in every case a microscopical examination of the growth should be made in order to determine to which type it belongs.

[1] The Vitamins. Chemical Catalog Co., New York. 1922.

THE MEDICAL SOCIETY OF LONDON.

JUDGING by its subsequent career the Medical Society of London appears to have acted wisely in standing outside the scheme which united in one building and fellowship many of the other metropolitan medical societies. For the debates and discussions are notable for the breadth of their scope and the fact that they draw together medical men of whom many would otherwise appear only at specialist gatherings. And this focus being social as well as academic, warmth is concentrated there. The 149th anniversary dinner held at the Wharncliffe Rooms was no exception to the rule. Kindred societies were represented there by their presidents and the three combatant Services by their medical chiefs. Mr. James Berry, who presided at the dinner, received something like an ovation.

CARDIO-VASCULAR DISEASES.

A SPECIAL cardio-vascular number[2] of the *New York Medical Journal* is of intimate interest to our readers from the fact that, with two exceptions, all the original communications are by British authors. We welcome this recognition of the special work on cardio-vascular diseases of our countrymen, and we congratulate the *New York Medical Journal* upon affording our writers an opportunity to express their views directly to the American profession. The subjects dealt with in the 13 papers cover a wide range and the writers have evidently been selected with care, each writing on some matter of which he has special experience. Space does not permit reference to all of them. Sir Clifford Allbutt contributes the first paper entitled a Discussion of Angina Pectoris. He reaffirms his now well-known view that this condition is in the large majority of cases of aortic and not of primary cardiac origin. He regards death in the fatal cases as due to a secondary inhibition set up by the pain or some other afferent influence, and not as the result of a primary heart failure; admitting that such inhibition is more likely to be effectual in cases in which the myocardium is gravely diseased. He criticises in trenchant style other theories and claims that his views are now achieving a wider acceptance, a claim fully justified. Dr. J. Strickland Goodall contributes a useful note on the Premature Contraction and its Significance. He discusses the various causes and the different varieties of extra-systoles. He points out the conditions under which, in his view, they may be of serious significance. We may express the hope that the abbreviations "fibbing" and "non-fibbing" as applied to fibrillation will not achieve a wide currency. A notable paper is that contributed by Dr. Arthur Latham on the Heart in Pulmonary Tuberculosis. Among other matters he considers the significance of the narrow vertically situated heart in regard to this disease. He is of opinion that where there is doubt as to the diagnosis of tuberculosis, the presence of this type of heart may be an important factor in deciding upon treatment, and further he believes that its presence in an undoubted

[1] Jour. de Méd. et de Chirurg. Prat., April 10th, 1921.

[2] New York Medical Journal, a Semi-Monthly Review of Medicine and Surgery. Cardio-Vascular Number, Feb. 15th, 1922. A. R. Elliott Publishing Co., New York, N.Y.

case of pulmonary tuberculosis is of unfavourable prognostic significance. Sir Sydney Russell-Wells contributes an interesting and closely reasoned paper on the Facies in Mitral Stenosis and Aortic Regurgitation. He suggests that in mitral stenosis the blood as a whole is more venous than normal and tends to accumulate in the systemic venules, the circulation slowing down, whereas in aortic regurgitation he believes that the blood as a whole is more arterial than normal and tends to accumulate in the systemic arteries, the circulation being quickened. The differences in the appearance of the facies in these two conditions is thus explained. Sir Sydney Russell-Wells's arguments are based chiefly on clinical observations, and he admits that experimental work would be necessary to establish his contentions.

OUR OVERSEAS DOMINIONS AND INDUSTRIAL MEDICINE.

ATTENTION has been called to the claims of industrial medicine in any Imperial School of Hygiene. Evidence now lies before us that the impetus, given in this country during the war by the Health of Munition Workers' Committee, and by the welfare and health procedures of the Ministry of Munitions, and since by the investigations of the Industrial Fatigue Research Board, is having a widespread influence. Some of those who took part in the movement have carried with them to our overseas possessions, and are making known there, the underlying principles. Thus, there has appeared in India an able article by G. M. Broughton on the Problem of Industrial Fatigue in India,[1] in which some account is given of the advances made, and a plea is put forward for their application to Indian industries. India stands in some ways where England stood in 1760, but she is coming under the influence of modern industrialism.[2] The cotton mills of Bombay, the jute factories near Calcutta, and the gold-fields of Mysore are examples, as is the new town of Jamsheedpur. Here the Tata iron and steel works, Indian owned and Indian run, were opened for the production of iron in 1910 and of steel in 1913; just in the nick of time, as the Government of India had to rely much upon this output for a supply of steel during the war. With fair coking—coal to hand, and an inexhaustible supply of iron ore containing from 60 to 67 per cent. of metallic iron within 50 miles, the new industry has leapt to the front; already it employs 44,500 persons, and has given birth in 12 years to a town of 100,000 inhabitants. To-day India has no hereditary industrial class of workers; labour is almost entirely recruited from the ranks of agriculturists; her industrial problems are before her; and, if she is to avoid what our industrial population endured during the first half of the nineteenth century, she is bound to turn to us for light and leading.

The story is repeated from Australia where the leading *Medical Journal*[3] contains "a masterly essay . . . . the classic on which industrial hygiene as it applies to women will be based" (we borrow these words from the editor) by E. E. Osborne, dealing with industrial hygiene. It reviews our own war work as seen by the author who was then in this country and took part in it, and draws attention to the need for such work to be extended to Australian factories. The same issue of this journal bears evidence that already a start is being made. For in addition it contains not only an article by J. Blaubaum on Industrial Medicine, in which he details the duties entrusted to the medical officer at the Barnet Glass Company's mills, and points out that the efficiency of an operative-personnel cannot be maintained without a medical service, but also a special abstract from, and comments upon, a valuable report of the New South Wales Board of Trade on white lead as used in the painting industry, a subject which recently aroused much controversy at the International Labour Conference at Geneva. The Board, after referring extensively to investigations carried out in this country, hesitates to propose regulations, preferring rather to advise that experience to be gained from action taken in England should be first regarded and closely watched. News also reaches us that a Technical Commission of Inquiry is about to report upon an extensive examination of workers in the mining centre of Broken Hill, where strenuous endeavour is being made to improve the hygienic conditions of labour.

The British Empire is essentially an industrial empire; wherever it exists industries spring up and health problems have to be faced, whether they be on the gold-mines of the Rand, at the diamond-mines of Kimberley, in the tin-mines of Nigeria, or when preparing palm oil in East Africa. All these activities as they develop must to an ever-increasing extent look to the home country, where industrialism originated, for instruction regarding the human side of industry, and for men and women trained in the science of industrial hygiene.

[1] The Problem of Industrial Fatigue in India. G. M. Broughton. Journal of Indian Industries and Labour. November, 1921.
[2] India, Old and New. Sir Valentine Chirol. Macmillian and Co. 1921.
[3] Industrial Hygiene as Applied to Munition Workers. E. E. Osborne.—Industrial Medicine. Ivan Blaubaum.—Special Abstract: The White Lead Inquiry. The Medical Journal of Australia. Nov. 26th, 1921.

AN "OPERATION CIRCLE" OF LONDON HOSPITALS.

IN 1913 two schemes were inaugurated to promote the interchange of visits of the surgical staffs of certain of the London hospitals.[1] During the war the carrying out of the programmes was suspended, but at a recent meeting of representatives of the various hospitals it was decided to restart the second circle formed by those hospitals which have not undergraduate medical schools, and Mr. Herbert J. Paterson was asked to act as hon. secretary, as before the war. The first operation afternoon will be held at the London Temperance Hospital at 1.30 P.M. on Thursday, March 30th. The scheme proved of value before the war, and will undoubtedly be no less valuable to-day.

ANKYLOSTOMIASIS IN CORNWALL.

THE last 20 years have seen a welcome reduction in the incidence of infection and liability to hookworm disease, which was first discovered in our tin-mines in 1902. Prof. R. T. Leiper, in a communication on hookworm in Cornwall, made before the Section of Tropical Diseases of the Royal Society of Medicine on March 6th, showed this improvement to be a gratifying sequel to the introduction of the preventive measures advocated by Profs. J. S. Haldane and A. E. Boycott and their co-workers in their reports of 1902–1908 on Ankylostomiasis in Cornwall, and to be due to the combined effect of better ventilation; the adoption of the bucket system for the collection of excreta in the mines, in addition to the treatment since 1904 of infected persons with thymol has had effect. During 1920, Prof. Leiper, together with Dr. M. Khalil and Mrs. Philpot, carried out investigations on behalf of the Medical Research Council into the prevalence of *Ankylostoma duodenale* and other intestinal parasites among the tin miners. From the results of examination of the stools of over 130 individuals they found that, whereas the percentage of those recorded infected by the Commission in 1904 was as high as 94, with a fall to 76 in 1908, the incidence of hookworm infection among the persons examined in 1920 was only just over 6 per cent. The records of other parasitic ova present included those of *Trichocephalus dispar*, *Strongyloides*, *Ascaris lumbricoides*, and *Oxyuris vermicularis*. The hitherto seldom recognised living ova of the wheat mite were noted in as many as 9 per cent. of specimens examined—an interesting discovery. Despite the fall in percentage of hookworm infections, the observations showed that, though reduced, there was however, no corresponding fall in

[1] THE LANCET, 1913, i., 841.

the rate of infection by the other forms of intestinal helminths, particularly *Trichocephalus*.

	1904.	1920.	
Trichocephalus ova present in	80	42	per cent. of miners.
Ascaris ,, ,, ,,	25	14·6	

This somewhat unexpected result Prof. Leiper attributed to the fact that the floors of the tunnelled workings in the mines still bear traces of fæcal contamination from infected workers, prior to the introduction of preventive measures and therefore dating back 20 years or more. The ova of the whip worm and round worm, being unaffected by the cooling effect of the improved system of ventilation introduced since 1904, still survive in the earlier pollution of the tunnel surfaces. Consequently the miners are still exposed to infection by these parasites. On the other hand, the ova and larvæ of the hookworm are less viable and have therefore been more readily killed by exposure to the lowered temperatures of mine air resulting from the through ventilating currents. An important outcome of these researches into the viability of the hookworm larvæ, was the original discovery by Dr. Khalil that the active larvæ are subject to thermotropic influences and move by thermic impulse in the direction of the source of heat. This factor may partly explain the attraction exercised by the warmth of the skin surface, and must materially assist the successful penetration of the larvæ into the human body through the sweat ducts—a mode of entry first observed and proved as the result of personal experiment by Looss over 20 years ago.

Examinations of the blood of the same miners, made during the course of Prof. Leiper's investigations in 1920, showed that, pari passu with the reduction in the number of victims of hookworm infection, there was considerably less anæmia among them. On the other hand, a high degree of eosinophilia was still found to prevail. This is accounted for by the persistence of infection by other intestinal helminths than the hookworm, as borne out by the results of the observations on the stools already mentioned, and in one case of strongyloides infection the eosinophilia was as high as 29 per cent. Eosinophilia among the miners, therefore, cannot be regarded as corroborative evidence of hookworm infection alone. The striking improvement achieved by the comparatively simple preventive and remedial measures during the past 20 years gives ground for hope that this debilitating disease may shortly be eradicated from our Cornish mines.

A JOURNAL OF METABOLIC RESEARCH.

A NEW medical monthly entitled *The Journal of Metabolic Research*,[1] edited by Dr. Frederick M. Allen with the collaboration of a large number of scientific workers in the United States, owes its inception, as the editor frankly admits, to the difficulty which he has found in publishing a series of papers on diabetes. Journals either would not accept the papers on the ground of expense or would only publish them at infrequent intervals. After consulting leading investigators in the United States the present journal was started with the object of publishing papers which embody original research. The aim will be to interest both laboratory and clinical investigators, especially as articles are to appear within a month or two of their receipt. The journal is to undertake the printing of necessary tables and illustrations, and the release of laboratory funds for other purposes will constitute to this extent an endowment of metabolic research. Papers are solicited from workers in the United States and elsewhere.

The first number of the journal, which is before us, is devoted to the third series of Allen's researches on the Pathology of Diabetes. 1. Hydropic Degeneration of Islands of Langerhans after Partial Pancreatectomy, by F. M. Allen. The characteristic changes which develop when more than seven-eighths of the gland are removed are vacuolation or hydrops of the cells and disappearance of the granules of the β cells which are stained by Bensley's specific stains. The change is apparent within five to seven days after the operation, reaches a maximum in three weeks, and remains in this state for one week. After five to six weeks the β cells are destroyed and the island becomes much smaller, consisting only of α cells. Allen believes that it is possible for a retrogression of the process to take place unless the hydrops has been established too long, a thesis difficult to prove. The β cells are only concerned with carbohydrate metabolism and not with ketosis or lipæmia. The paper is illustrated with 20 beautiful microphotographs of the various changes in the islands.—2. Granule Stains of the Islands of Langerhans of the Diabetic and Non-diabetic Pancreas, by Walter B. Martin. This paper gives full details of the methods for preparing and staining the specific granules. The granule stains are uncertain and now that the pathology of the α and β cells has been worked out, sufficient information is obtained by studying the hydrops of the cells. In dogs the changes can always be observed, but in man, although there is often a quantitative deficit, in some cases there is no deficit and the proportions of α and β cells seems to be unaltered. He concludes that we must still face the necessity of assuming some functional alteration as the basis of diabetes in man. The same conclusion, the writer adds, seems to have been reached by Homans from unpublished observations.—3. Nervous Influences in the Ætiology of Experimental Diabetes, by F. M. Allen. No influence of emotion upon the production of diabetes could be demonstrated in these experiments. The Claude Bernard piqûre of the medulla seemed to be a genuine factor in producing diabetes in one predisposed dog, but the question must be left open at present. Complete separation of a pancreas from its original nerve-supply fails to give rise to diabetes. The full endocrine potency may apparently be maintained without stimulation or regulation from any special nervous centres. The development of hydrops of the cells is also quite independent of the nervous system. The cause of the development of the hydrops is unknown, as it is not due to the presence of hyperglycæmia. Experiments on diminishing or increasing the blood-supply of the pancreas had no effect on the islands.—4. Dextrose: Nitrogen Ratios in Partially Depancreatised Dogs, by F. M. Allen and Mary B. Wishart.—5. The Influence of Glucose Ingestion on Diuresis and Blood Composition in Non-diabetic and Diabetic Persons, by James W. Sherrill and Henry J. John.

The journal is well printed and illustrated and will justify its existence if it attracts important papers on metabolism, so that workers in this field will know where to turn for their data.

[1] Published monthly by the Physiatric Institute, Morristown, New Jersey, U.S.A. $10 per year.

EFFECTS OF ALCOHOL ON THE STOMACH.

IN a monograph, respresenting investigations carried out at the Physiological Institute of the University in Christiania and in the medical wards of a municipal hospital, as well as in the medical polyclinic of the Rikshospital, Dr. A. O. Haneborg[1] provides much information, some of it new, on the reaction of the stomach to alcohol in various doses and under various conditions. The general impression given by the author is that he has not set out with preconceived notions as to the effects, good, bad, or indifferent, of alcohol on the system. Many of the experiments he describes in detail illustrate the physiological rather than the pathological problems investigated, but there are important sections in which the value of alcohol in digestive disturbances is discussed. Taking everything into consideration, however, it may be said that the ancient reputation of alcohol as a stomachicum has received a blow, "although a conditional one," in the investigations under consideration. What the author apparently means by "conditional" is that in certain persons and under certain conditions small quantities of alcohol taken with food

[1] The Effects of Alcohol upon Digestion in the Stomach. 1921. Christiania: Gröndahl and Sön. Pp. 123.

promote digestion. But the concentration of alcohol must not be above 10 per cent. of the total contents of the stomach, and if the patient already suffers from "hyperacid" dyspepsia and gastric ulcer the increased secretion of free hydrochloric acid and of the total acidity, due to the administration of alcohol, is apt to increase pyrosis and pain. The case is different with cancer of the stomach in which alcohol may relieve a sense of nausea, fullness, and pain (cf. experiment No. 37). In nervous dyspepsia the author found sex and age play a certain part; elderly men suffering from hypochlorhydria and hypacidity may derive benefit from alcohol given with food, whereas females and young men unaccustomed to alcohol may derive more harm than benefit. In several cases Dr. Haneborg succeeded in obtaining, by the administration of alcohol, free hydrochloric acid in gastric juice in which it had not previously been found; and he argues that in such cases alcohol will naturally promote gastric digestion to an appreciable degree. In the course of his researches he found that about every other apparently healthy person over the age of 50 had little or no free hydrochloric acid in the stomach, and in this large class of cases he thinks that alcohol may sometimes "help over the difficulties." These elderly persons may not, under perfect dietetic conditions, suffer from any digestive disturbances referable to the stomach. But the margin between gastric comfort and discomfort is narrow, and as soon as they are given unsuitable and badly prepared food they pass from comfort to discomfort, when small quantities of alcohol with their food may prove beneficial. Dr. Haneborg shows himself conversant with the pitfalls awaiting the investigator who would know in what manner alcohol increases gastric secretion, and he concludes his discussion of this point with the guarded opinion that ". . . . it is most probable that the increase of secretion is due to the effect of alcohol upon the nervous system on account of its generally exciting action."

THE UNIVERSITY OF PADUA.[1]

IN these pages Sir George Newman sets out in scholarly wise the debt which the world owes to the city where Livy, Mantegna, Petrarch and Galileo worked, and to the medical faculty with which Vesalius and our own Caius and Harvey were connected—the names selected being but a fraction of those which the author enumerates in his tribute to the University of Padua on her 700th anniversary.

In is the sixteenth century in Padua which he selects for particular notice as the "century of medicine," pointing out that at this critical period in the development of human wisdom Padua "proved to be the foster mother of some of the most dynamic of the new and living forces of medicine." Vesalius, a Belgian, having been educated at Louvain and Paris, and having served as a military surgeon in Flanders, received his medical degree at the University of Padua in 1537, and was appointed to the chair of anatomy. Immediately upon his installation he introduced a new method of dissection and demonstration—the method of actual observation as against traditional report—thus beginning at Padua an incomparable period of medical development. The author of the "Fabrica Humani Corporis" was in a sense the originator of modern physiology, and, as Sir George Newman points out, he founded a dynasty, for Realdus Columbus, Fallopius, Fabricius, Casserius, and Spigelius followed him in succession, the last four, like Vesalius, being for ever preserved in our memories by anatomical nomenclature. And almost contemporary with Vesalius was Fracastorius, who guessed the connexion of contagious diseases with germ-like bodies which could be conveyed through the air, and may be termed the first epidemiologist. Fabricius, Harvey's master, was the earliest comparative anatomist, and his anatomical work, added to the discoveries of Servetus and Cisalpinus, formed the foundation of Harvey's grand discovery, of which Sir George Newman says: "Its effect was amazing. For his mode of procedure vindicated for ever the experimental method: his finding placed the blood in the forefront of physical life and gave it an altogether new meaning, chemical and physiological. Lastly, the demonstration of the circulation gave a true conception to nutrition. Here was an end to 'spirits' and 'vapours,' here was the operation of physical and physiological law." Sir George Newman's description of the golden age of the University of Padua is a stirring footnote to history, and his analysis of the part, played by Galileo as a physicist, in making straight the paths of medicine is one more proof of the inter-relation between all branches of science in the journey towards ultimate truth.

[1] A Century of Medicine at Padua, by Sir George Newman, K.C.B., M.D., D.C.L., Emeritus Lecturer on Public Health at St. Bartholomew's Hospital, London. British Periodicals Limited, 170, Fleet-street, E.C. 4. Pp. 38; Illustrated. Price 1s.

THE PHYSICAL EDUCATION OF GIRLS.

IN October, 1921, we reported at length[1] a meeting of the Medical Officers of Schools Association devoted to the discussion of games for girls, on which occasion the main expression of opinion was quite favourable to games as a valuable form of the outdoor exercise necessary for the health of every child at school. A joint committee of men and women representing the medical and teaching professions has now been formed to inquire into the present physical education of girls, with particular reference to its results, beneficial or harmful, either during girlhood or in later life. The term "physical education" is understood to include athletic sports and games, as well as disciplined exercises. The chairman of the committee is Dr. G. F. Still, and the bodies represented are as follows: Royal College of Physicians of London; Royal College of Surgeons of England; British Medical Association; Medical Women's Federation; British Association for Physical Training; Ling Association; National Union of Women Teachers; Association of Assistant Mistresses in Secondary Schools; Private Schools Association (Inc.), and College of Preceptors. The committee will be grateful for any information which members of the medical profession may be willing to give concerning their experience in the matter under consideration. At the meeting referred to above repeated statements were made as to the lack of considerable evidence which had characterised the discussion on athletics for girls at that time going on in the lay press, and it is important that the volume of available data should be as large as possible. Communications should be addressed to: The Hon. Sec., Joint Committee, College of Preceptors, Bloomsbury-square, W.C. 1. All information will be regarded as strictly confidential. A form of questionnaire will be sent if desired.

ARMIES AND EQUIPMENT.

IN the Hon. Mr. Justice Riddell's article on the Cold Plague of the War of 1812–14, which appeared in THE LANCET of March 11th, there was a paragraph dealing with the inevitable result of lack of supplies, and his words indicated the debt that our recent armies owed to military organisation in this direction. Transport and supply formed the great difficulty of commanders in the days before railways, and the records of the Napoleonic wars are full of instances of failure among both French and British, a notable one being the lack of supplies to the French army on the night before Waterloo. It is not unreasonable to speculate that had the French army been properly fed and warmed on the night of June 17th, when they were lying in the rain, the result of the battle might have been different. Later the records of the American Civil War show similar deficiencies in food supply on either side at critical times, and the same may be said of the collection of the wounded; even during the Franco-Prussian War of 1870 matters were deplorable in this respect. Among the most

[1] THE LANCET, 1921, ii., 902.

satisfactory features of the late war was the way in which the food supplies of the Allies were kept going, as was, in the later stages, the admirable arrangements for the care and collection of the wounded in the European field. Germany, among other elaborate preparations for war, did not neglect questions of transport, and one of the most remarkable instances of preparation is given by Mr. L. W. Lyde in his "Continent of Europe," where he describes the railway at Malmedy, close to the Belgian frontier. These were the conditions before the war. "South of Malmedy, though the normal traffic does not average half a dozen small trains in the 24 hours, there is a heavily metalled and double track running parallel to and within a mile of the Belgian frontier." He goes on to describe how along this track there is a station at every three miles, with siding accommodation for allowing half a dozen to a dozen long troop trains to be side-tracked without disturbing the main-line traffic, together with high platforms and all necessary apparatus for detraining horses, guns, and wagons. Such are the improvements in man-slaying machinery brought about in a little over 100 years.

INTRAPERITONEAL SALINE INJECTIONS.

Dr. J. Claxton Gittings and Dr. John D. Donnelly,[1] of the Children's Hospital, Philadelphia, who describe their own experiences of the method in 116 cases, maintain that the intraperitoneal route for the administration of saline solution to dehydrated infants, introduced by Blackfan and Maxey in 1918, is one of the most valuable therapeutic measures which has been advocated within recent years. As a general rule they were able to inject from 20 to 30 c.cm. (5 to 8 fluid drachms) for each 480 g. (pound) of body-weight into infants under 1 year of age. Sometimes much more than this was injected, but 300 c.cm. appeared to be a maximum. The needle was immediately withdrawn whenever disturbance of pulse or respiration occurred. Sometimes a leak of solution took place through the puncture wound after the needle had been withdrawn, but this was usually checked by firm pressure for a few minutes or by a sterile gauze and collodion dressing. Most of the writers' cases were examples of the group of gastro-intestinal disturbance with diarrhœa. Fifty-seven had been acutely ill two weeks or less before admission to hospital, and 22 had been ill for more than two weeks. Most of these 79 cases, among whom the mortality was 64·5 per cent., showed more or less intoxication. Twenty-six cases, of whom 61·6 per cent. died, were diagnosed as infantile atrophy, but more or less diarrhœa was present. Two premature infants and one with otitis media died. Seven infants admitted for regulation of feeding on account of diarrhœa, and one with pyelitis, recovered. The total number of deaths among the 116 patients was 70 cases, or a mortality of 60·3 per cent. A necropsy, which was held in nine cases, showed that no injury had been done to the peritoneum or to any of the abdominal organs or structures. In seven cases in which death had occurred from 12 hours to seven days after the last injection, the peritoneal cavity contained no fluid, while in the other two patients, who died from 4 to 12 hours after the last injection, the peritoneal cavity contained 10 c.cm. and 250 c.cm. of fluid respectively. The writers regard puncture of the peritoneal cavity as a safe procedure, provided the bladder is empty, distension is not extreme, and a rigidly aseptic technique is employed.

AT the Medico-Legal Society on March 22nd, Lord Dawson claimed that the position of the medical man was so special and the circumstances under which he gained his knowledge so unique that, in the interests of the public, some measure of protection should be accorded to his evidence. Lord Russell, Lord Riddell, and Sir John Goodwin continued the discussion, which was adjourned until March 29th.

[1] American Journal of Diseases of Children, February, 1922.

HEALTH REPORT OF THE ROYAL AIR FORCE FOR 1920.*

I.—A BRIEF ACCOUNT OF THE METHODS OF PREPARATION.

MEDICAL statistics in the Royal Air Force are compiled from cards which are copies of the sickness case sheets. These cards are filed in the Air Ministry and form a complete record of sickness of all personnel for the duration of their service and are available for immediate reference at any time. They also constitute the data from which the annual report of the Royal Air Force is compiled. It would be a task of considerable magnitude to extract by hand the information required for the preparation of the various tables in the report, as this would entail innumerable sortings of a prohibitive number of cards, or, alternatively, an elaborate system of cross-card-indexes. The solution lies in the employment of mechanical sorting. This process was adopted in the preparation of the report, and a brief outline of the system is described below.

For medical statistical purposes sickness in the Royal Air Force falls into two categories—viz., cases of 48 hours' or less duration and cases lasting over 48 hours. It is principally with the latter that this article deals.

Cases of 48 Hours' Duration or Less.

Cases involving absence from duty on medical grounds up to 48 hours are notified on a weekly return from all stations, the return showing the number of cases and the total number of days' sickness. The totals shown on these station returns are consolidated, and when added to the totals for cases of longer duration give the total number of cases and days' sickness for the station, command, or total force. These 48-hour cases are not shown in the nosological table on p. 20 (et seq.) of the report, as the diagnoses are not notified by the stations and the short durations of the cases rob them of any clinical interest.

The actual number of the 48-hour cases is less than the number of cases of over 48 hours; for the total force in 1920 there were 11,685 48-hour cases, as compared with 14,309 cases of longer duration. The effect of these short duration cases on the case incidence rate per 1000 of strength is marked, and increases the rate for the total force from 551·8 per 1000 to 1002·4, but their effect on the medical non-effective rate of the force as a whole is naturally a comparatively slight one. Including the 48-hour cases, the constantly sick ratio per 1000 of strength for the total force was 40·2; the exclusion of these cases only reduces the rate to 38·4 per 1000.

Cases of Over 48 Hours' Duration.

For all cases of over 48 hours' duration a medical statistical card is made up by each medical officer dealing with the case, to cover the period the case is under his care. Thus, the medical officer at the station sick quarters makes up the card, and if the case is subsequently transferred to a hospital the medical officer in charge of the case there makes up a further card. The cards are forwarded to the Air Ministry, and form the data on which the health report is based. As will be seen from the front of the card, the information given is a classified record of first-hand observations. The card illustrated (Fig. 1) has been completed for a fictitious case of the simplest type—i.e., where the patient is admitted and discharged to duty from the same hospital.

On arrival at the Air Ministry the cards are scrutinised, and before being filed are coded in preparation for sorting and counting by mechanical

* Report on the Health of the Royal Air Force for the Year 1920. To be purchased through any bookseller or directly from H.M. Stationery Office at the following addresses: Imperial House, Kingsway, London, W.C. 2, and 28, Abingdon-street, London, S.W. 1; 37, Peter-street, Manchester; 1, St. Andrew's-crescent, Cardiff; 23, Forth-street, Edinburgh; or from Eason and Son, Ltd., 40 and 41, Lower Sackville-street, Dublin. Price 6s.

means. The code used is a figure one, and is, of course, prepared in advance. Each heading or classification on the card is considered, and all possible variations are listed and numbered. When a card is coded a clerk records the appropriate code numbers for the particular set of facts on a separate slip. The illustration (Fig. 2) gives the code-slip for the particulars detailed in Fig. 1.

Some details of the more interesting items of the code may be of interest.

Trade.—The actual number of trade sub-classifications used in the Air Force is about 90; but for medical statistics these trades are grouped together into nine main groups, as shown on p. 13 of the report.

FIG. 1.

No. of enclosure in Form 48..*3*..

ROYAL AIR FORCE.

Discharge from Hospital or Sick List—Record Card.

Surname..*Brown*..... Christian Names..*Thomas*.....
Rank....*A.C.2*.....Branch or Trade..*Driver (Motor Trans.)*.
Under Instruction as....*N/A*..... Official No...*115876*...
Hospital or Station rendering this form..*R.A.F. Hospital.*——
Unit.....——————*Squadron*.....
Age..*24*.. Total Service..*3.6/12 yrs.* Serial No. in Form 38..*23*.
Station whence admitted ——————.....
Date of Arrival at Sick Quarters *or* at Hospital as an Admission .....*22.1.20*.....
Date of Arrival at Hospital as a transfer from .....
Date of discharge to duty.....*28.2.20*.....
Date of discharge as an invalid (*i.e.*, unfit for any further service).....
Date of death.....
Date of transfer..... to.....
No. of days under treatment.....*38*.....

CLINICAL NOTES:

Disease or Injury (1)..*Colles Fracture, R.*.....
New Disease supervening .... (2) .....
Date of New Disease supervening (3) .....
Operation (nature and date).....*Reduction of fracture.*.....
.....*22.1.20.*.....
Anæsthetic and method of administration....*Nitrous oxide*....
Result of operation.....*Successful*.....

Date. Previous history of case and family if relevant.....
Was starting his lorry on 22.1.20 when the engine backfired and injured his right wrist. Accident on duty......
Condition on admission.....*Seen 30 minutes after accident. Marked backward displacement of lower fragment of R. radius; considerable pain and swelling.*
.....

N.B.—In the event of an error in diagnosis, the disease or injury entered will be crossed out in such a way as to remain legible, and the new disease or injury will be entered above it. In the event of a new disease supervening it will be entered under (2), and the date under (3).

The italic sentences and figures show the data inserted on the cards.

Disease.—The diagnosis is invariably scrutinised by a medical officer before the card is coded. This scrutiny is essential for accurate diagnoses, as the original diagnosis made in station sick quarters is frequently altered after further investigation by X ray examination or in the laboratory of a hospital, these methods not being available in station sick quarters. Again, many cases originally diagnosed as "inflammation of connective tissue" are in reality the local injuries which occurred two or three days previously, as revealed by the history of the case; and such cases are coded as local injuries in order to arrive at the correct proportion of injury to disease in the Force, and for the proper classification of injuries and their causes. The actual code numbers of the disease code run into four figures and include all diseases in the official nomenclature. It has proved necessary in practice to elaborate certain diseases—e.g., malaria has been given the following code numbers:—

Malaria—	Malaria—
1026. Primary clinical.	1031. Recurrent benign tertian.
1027. Recurrent clinical.	1032. Primary malignant tertian.
1028. Primary quartan.	1033. Recurrent malignant tertian.
1029. Recurrent quartan.	
1030. Primary benign tertian.	1034. Malarial cachexia.

The official nomenclature only shows—

Malaria quartan.	Malaria malignant.
,, benign tertian.	Malarial cachexia.

The same principle applies to dysentery and venereal disease. "Colds," "Sore throats," and "Coughs" come in the nomenclature partly under Respiratory and partly under Digestive diseases. These have been rearranged and grouped together in the code under the heading of "Upper air-passage infections." The actual date and month of attack are recorded for the purposes of obtaining monthly case-incidence figures and for use in statistical investigations of epidemics. The year of attack is coded by inserting the last figure of the year concerned (in this case 0), and is necessary to distinguish cases starting prior to 1920 from those starting during the year, as the former do not add to the case incidence, but their duration during 1920 goes to swell the total number of days' sickness. They are regarded as balancing the cases which are still remaining in hospital at the end of the year, and are, of course, not complete; their case incidence is, however, included. The year of completion is coded similarly to the year of attack, its function being to enable the different years' cases to be separated again after being sorted to secure sickness figures or averages over a period of years.

FIG. 2.

SICKNESS, 1920.	Code:—
Command:—	*01*
Station:—	*123*
Unit:—	*094*
Official No. or Name of Officer:—	*115876*
Trade Group:—	*5*
Year of Birth:—	*98*
Disease:—	*4275*
Date of attack:— (day and month)	*22·1*
Year of attack:—	*0*
Year of completion:—	*0*
Duration in Sick Quarters:— (present year)	*00*
Duration in Hospital:— (present year)	*038*
Cause of Local Injury:—	*44*
Result:—	*02*
Operation:—	*091*
Result of Operation:—	*1*
Place of Operation	*3*
Anæsthetic:—	*1*

Checked:—..... *Extracted:*—.....

Durations in sick quarters and hospital are coded in actual number of days. Sick quarter sickness is coded separately in order to determine the actual amount of sickness and the constantly sick figures at individual station sick quarters.

The Cause of Local Injury.

The code numbers for local injuries are not only used for the actual causes of all injuries, but also serve to

provide data in connexion with certain diseases. The necessary details with regard to previous inoculations as to whether fully, partially, or not protected are coded in connexion with the enteric group and small-pox. A series of ten code numbers is used to provide information about venereal diseases. It records prophylaxis—whether used properly, improperly, or not at all—and whether the disease was contracted on leave or at the airman's station. Some other diseases in which the cause code is used are those resulting from old injuries, and effects of antisyphilitic treatment.

The causes of the large numbers of athletic accidents in the Royal Air Force are coded under the various types of athletics in which the injuries are sustained, and include, amongst others, accidents occurring in gymnasia and physical training. Cases of motor accidents are divided into the various types of vehicles involved, and are again subdivided into those "on duty" and those "off duty." Starting-motor accidents are also given a separate code number. Accidents caused whilst swinging propellers in starting up aeroplane engines constitute another important "causes" code number. Wounds in action are coded as to whether they occurred on the ground or in the air.

The particular fauna causing injury through bites are coded, and range from dogs and jackals, snakes and scorpions, to jelly-fish. The airman who attributed a recently-acquired attack of acute gonorrhœa to being stung on the end of the penis by a jelly-fish whilst bathing was not coded under the heading of "bites." Accidents on duty have their own code number, and include workshop injuries, &c. Accidents off duty and accidents on leave constitute the majority of the remainder.

Result.

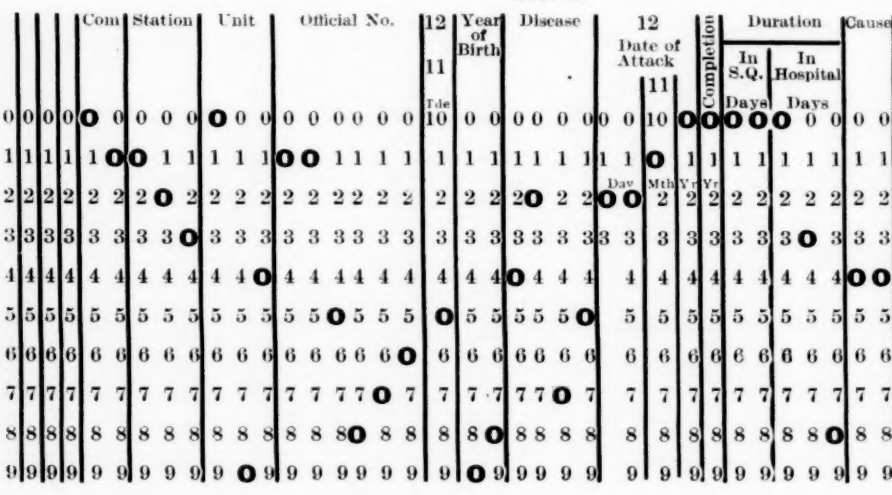
"Duty," "light duty," "duty after leave," "discharge by change of diagnosis," "invalids," and "deaths" comprise the majority of the results. At the end of the year all cases remaining in hospital have a special code number "Remaining at end of year." The result code is further divided in order to provide statistics dealing with numbers invalided from overseas to home establishment. The remaining portion of the code dealing with operations, place of operation, result, and anæsthetic need no explanation.

In the card illustrated the code numbers shown correspond to the operation, anæsthetic, and result on the statistics card. The slips are all carefully checked and are then passed to a clerk for the particulars to be hand-punched (by a machine rather like a typewriter) on the actual cards, which are subsequently passed through the sorting and counting machines. Each card contains 45 columns and each column is divided into 12 sections; one or more columns are grouped together to form fields, each field representing a category on the slip and medical card, particulars of which it is desired to investigate. Fig. 3 shows a card punched to record the original particulars shown in Fig. 1 and coded as in Fig. 2. In the reproduction of Fig. 3 the punched holes are represented by **O**.

When all the cards are punched, the indicators on the sorting machine are set to the particular column (or category) under investigation and the machine then sorts all the cards into 12 different slots, according to the particular holes which have been punched in the column in question. The machine sorts cards at the rate of about 12,000 per hour. When the cards have been sorted, each batch is passed in succession through the counting machine (which deals with about 9000 cards per hour) and produces totals of the number of cards passed through and the totals of the numbers recorded in any particular column or series of columns. It may be of interest to trace the production of the table on p. 14 of the report through the various stages. The table shows the different case-rates, &c., for the more common diseases and injuries for the various trades in the Air Force. The first step was to sort the cards into their respective trade groups as punched on the cards in Column 19. Each group of cards was then sorted into groups according to disease (Columns 22–25) and each disease sub-group was then sorted according to result (Columns 38–39). The number of cards for each result in each disease was then obtained by counting; and the totals thus provided, when divided by the average strength of each trade, gave the ratios reproduced in Table 5. This table is for the total force; had it been thought necessary, the table could have been divided to show the rates for each command by sorting the cards for Columns 5 and 6 before sorting by trades. By a more extended use of the counting machine the total number of days' sickness for each disease could have been obtained (and was obtained in the nosological and other tables) by employing the section of the machine which adds totals to produce the total number of days' sickness shown in Columns 31–35, in addition to counting at the same time the number of cards which had produced that sickness. The tables relating to the physical measurements of recruits were produced by the same mechanical methods, a special slip and card being used for the purpose.

The above very brief description of the punched cards and machines is sufficient to show that totals for any combination of categories can be obtained in a very short time, whereas the amount of clerical labour

FIG. 3.



required to produce the various tables in the report by non-mechanical means would have been prohibitive. The adoption of the mechanical means explained above not only effects a direct saving of labour in the production of basic statistics, but also enables valuable statistical investigations to be undertaken which could not otherwise have even been contemplated. For example, although the present report contains no statistics on the subject of case-incidence rates in relation to age, the material is available and it is hoped to introduce a table in future issues. It is felt that case-incidence rates for different age groups will be of considerable value in the study of epidemiology.

The system lends itself to almost indefinite extension in analysing statistical material, as once the material has been transferred to the cards they are available at any future date for any special investigation required in respect of any particular period or successive periods.

(To be concluded.)

LUNACY REFORM.

THE conference on lunacy reform under Sir Frederick Willis was unable in the two days of its deliberations to cover all the items on its long agenda. In an appendix to the report of the proceedings (H.M. Stationery Office, 2*s.* 6*d.*) opportunity has been given to those delegates who had prepared to speak but could not be heard for lack of time.

The Clothing of Patients.

Dr. J. F. Dixon, medical superintendent, Leicester City Mental Hospital, points out that at present so many suits or dresses, boots and stockings, hats, &c., of more or less the same material and pattern, and all *abnormal*, are allocated to the stock of each ward. A patient transferred from one ward to another leaves these clothes behind, and gets into clothes belonging to the other ward. This clothing is more or less uniform—it certainly has no individuality. This method is certainly simple, easy for stock-taking and keeping, cheap, and safe—in case of escape the patient can be spotted as a lunatic a mile off—but nothing could be better calculated to create an atmosphere of depression and hopelessness. Individuality and normality should be our watchwords. Wherever possible patients should wear their own clothes. Wardrobe accommodation for each patient or small groups of patients should be provided. As regards bootlaces, busks, strings, even hatpins, supervision should take the place of deprivation. Thus would an atmosphere be created in which the psychology of clothes had free play, dissipating to a large extent the bogeys of suicide and escape.

Dr. A. Rotherham, Commissioner of the Board of Control, considers that since everything possible should be done to maintain the normal conditions of home life and the patients' self-respect; the clothing supplied in mental hospitals, though generally of excellent quality, is too institutional in character, of too old-fashioned cut, and insufficiently well-fitted. Patients should be allowed to wear their own private clothing when friends are willing and able to supply it. Alternately, each patient, except perhaps those who are of dirty and destructive habits, should be supplied with his own outfit of clothes. The only drawback would appear to be the extra time taken in sorting the clothes returned from the laundry.

Greater Freedom, Parole, and Open Wards.

Dr. Dixon points out that greater freedom, parole, and open wards practically all amount to the same thing, and stalking round them are the old bogeys of escape, suicide, homicide, and various forms of sexual and other assault. The proposition will generally be accepted that restraint or constraint is directly provocative of restlessness. Circumstances have conspired to make the *safe custody* of patients the dominating aim of our methods, owing to the odium attached to authorities for the suicide, escape, or delinquency of a parole patient. Whether patients are to be cribbed, cabined, and confined to avoid that risk, or whether the lives of the majority are to be made tolerable by the acceptance of it, is a matter of policy, and depends largely on the amount of support and encouragement forthcoming from the central authority. Fifty per cent. of the male patients and 37 per cent. of the female patients at Humberstone are on full or limited parole, and the moral effect is striking.

Dr. Rotherham regards it as absolutely essential, for every reason, that restrictions to personal liberty should be reduced to a minimum. Patients should be given the impression that they are in a hospital for treatment and not primarily in a place of detention. This would to a material extent be effected by a large increase in the granting of parole and, for patients to whom this cannot be given, by treatment as far as possible in wards with unlocked doors, even if they only open into the airing courts. An additional advantage would accrue from the unblocking of windows (upper or both sashes) on the ground floor. In the opinion of the Board of Control the good which would result from the added freedom far out-balances the dangers, such as escapes, suicides, assaults by fellow-patients, &c. Medical superintendents may naturally fear the censure of their committees, a coroner, a jury, the press, and even of the Board. If medical superintendents take their committees into their full confidence on the matter; if chairmen of committees would invite the coroner and the heads of influential local papers to visit the asylum, and would, with the medical superintendent, explain the whole matter to them, Dr. Rotherham is assured that they would find willingness to help in the objects of the scheme and in enlightening the public. As to the Board, in the case of any accident, provided the superintendent can say that the patient was allowed parole or other freedom of action after due consideration by himself or some responsible medical officer, the Board will not in any way pass censure on his conduct.

Incentive to Work; Payment and Special Industries; Organised Amusements.

Dr. P. T. Hughes, medical superintendent, Worcestershire Mental Hospital, Barnsley Hall, affirms the value of varied employment as (*a*) a direct curative agent; (*b*) a re-educative and therefore curative agent in patients suffering from dementia following the acute psychoses; and (*c*) an agent which produces contentment, freedom from excitement, and improvement in the general health amongst able-bodied irrecoverable patients, and is further of educative value in the case of patients suffering from mental deficiency. A great difference exists between an institution which draws its patients in the main from rural or semi-rural areas and one to which patients are sent from an urban area. Certain highly skilled tradesmen amongst the patients at the London County Mental Hospital, Bexley, had little interest in such varieties of employment as were provided in the wards, upholsterer's, shoemaker's, tailor's, and carpenter's shops, and, having been brought up in a city, regarded agricultural work more or less in the light of an insult. Most of the available space, in the upholsterer's shop especially, was occupied by a large number of dements who were employed in the most insanitary and unnecessary work of mattress hair picking by hand. By paying particular attention to the patients' trade experience it was possible to establish (1) weaving, (2) basket making, (3) mat making, (4) bookbinding, (5) French polishing, (6) wire work, such as flower baskets, bird-cages, &c., (7) chair making (wickerwork), (8) brush making, (9) tinsmith's work, and in addition, a considerable number of patients were employed with the bricklayers, plasterers, blacksmiths, and painters. A hospital which receives patients in the main from a rural area can provide open-air work, which is the ideal form of employment. Adequate opportunities for open-air exercise, particularly during

the winter months, should be provided for patients engaged in a trade. The employment of females is unsatisfactory; whereas such work as fruit culture, poultry farming, and the care of the ornamental grounds on the female side could well be carried out by female patients, in a small institution this would mean a serious increase in the number of outside domestic staff, in the kitchen and laundry particularly, and would, therefore, be somewhat costly. Dr. Hughes emphasises the special importance of ensuring that patients employed indoors, in kitchens, laundry, or needleroom should be given greater opportunities for fresh air and exercise.

Incentives to Work.—With regard to payment in cash or kind to patients as an incentive to work, apart from allowing the male patients a weekly amount of tobacco or some addition to the regular dietary, and the female patients, a regular daily allowance of tea, Dr. Hughes has found it altogether unnecessary to make any payment in cash or in kind. By personal encouragement and reasoning with the patients he has never experienced the slightest difficulty in showing to the great majority of patients that employment is essential for their welfare, happiness, and eventual recovery.

Amusements.—Dr. Hughes emphasises the value of a cinematograph installation, weekly dances, open-air carnivals, and summer and winter sports, inter-ward parties, concerts and whist drives, the committee providing some small sum to be expended in providing refreshments and prizes. A considerable number of the parole and quieter patients could with advantage be taken to local football and cricket matches. Provision for other games, such as croquet, quoits, bowls, lawn tennis, and badminton, brings up the question of expense as a prohibitive factor.

Absence on Trial or Boarding Out.

Dr. M. A. Collins, medical superintendent, Kent County Mental Hospital, Chartham, points out that one of the deterrents leading patients to avoid early treatment is the fear that they may be considered insane, certified, and never discharged. He deplores the custom in county hospitals of limiting absence on trial to one month; moreover, except where a money grant is required, the medical superintendent should have power to grant absence on trial. More effort should be made to discharge patients by boarding out during the first year or two of residence. At present, under Section 79, Lunacy Act, 1890, patients discharged must be free from all control. General hospitals do not keep cases until fully cured; and more discharges might be arranged if some measure of permanent supervision could be retained. Discharge by relatives in rate-aided cases Dr. Collins considers expensive and undesirable.

After-Care.

Dr. Collins pays a tribute to the Mental After-Care Association.[1] He suggests that stronger local branches of this association be formed and that these concern themselves with finding suitable persons with whom cases might be boarded, with occasional inspection, and also try to supply in towns and villages sympathetic persons to whom discharged persons might apply for advice and assistance in obtaining work, &c.

Mr. S. J. Fraser Macleod, Commissioner of the Board of Control, points out that at present there is an indefinite power of trial under Section 55; a power to board out under Section 57; a power of discharge to friends under Section 79; and an absolute power of discharge under Section 77. These powers, all vested in the visiting committees of county and borough asylums, are more or less related to each other. Trial is in the main only used with a view to discharge, but it might perhaps be made use of with a view to boarding out under Section 57. There is nothing to prevent a superintendent or visiting committee from communicating with a relative or friend and suggesting trial with a view to eventual boarding out. In these days of easy transport there would be few difficulties in visitation for the purposes of continuation orders. Greater use should be made of Sections 55, 57, and 79. If the law were altered Section 57 might be enlarged by giving a visiting committee power to initiate and find someone ready to take a patient to board and lodge independently of any expression from a relative or friend. The power of discharge in regard to private patients might be extended in a modified form to the ordinary rate-aided patient.

Revision of Case-Books and other Records.

Dr. H. A. Kidd, medical superintendent, West Sussex County Mental Hospital, makes it clear that the case-book system is cumbersome and out of date. If it were allowed that a "case-book" is not necessarily a book containing a number of cases bound together, but that it may, if desired, consist of a folio for each case, and if notes had not to be copied into case-books, much time might be saved. The folio system has been proved to be most satisfactory in practice for keeping together the detention order, transfer papers, personal and family history sheet, record of relatives' names and addresses, dates of visits and inquiries, copies of correspondence, special notes by medical superintendent, specimens of patients' letters, photographs, radiograms, visiting specialists' reports, bacteriological, and other findings. By the inclusion of the clinical notes, copies of statement on admission, and continuation reports these records could be rendered complete. The value of the clinical notes would be greatly enhanced if all the reports by sisters and charge nurses were included; at present much precise and valuable information as to passing mental and physical conditions is lost to the records. Finally, on the discharge of a patient there would be added to the folio all the notes, charts, &c., kept in the wards, and, in case of death, the post-mortem notes. Current folios can be kept in a special alphabetical filing cabinet, and separated from those of discharged patients. In Dr. Kidd's opinion, the civil and medical registers could be replaced by a card index system, of which he outlines the chief advantages. The statistical tables were originally drawn up by the Medico-Psychological Association in 1876 and were revised in 1905. The percentage death and recovery-rates would be more accurate if compiled by massing the data than they are by averaging a number of isolated percentage rates. And the rates are calculated upon a basis likely to give a false impression to the public as to the real results of treatment. For example: A recovery-rate is annually published (calculated upon a basis which has no sound relation to recoveries) and is read by "the man in the street" to mean that only about five or six patients out of a hundred recover; accompanying this he sees another recovery-rate (on a better but still unsound basis) setting out that about thirty-two out of a hundred recover.[2] No wonder he concludes from the first that the results of treatment are very bad, and from the second that it is an attempt to represent the matter in the most favourable light, which is still most unsatisfactory; and he does not, or cannot, go behind the statements made. These returns are misleading and result in strictures on "asylum" treatment. Of the real facts there is every reason to be proud. A knowledge of the real recovery-rates, and remarkably good improvement-rates, which are never referred to in any way, would do much to secure that credit which is justly due to the treatment of mental disorders in our public hospitals.

[1] The Mental After-Care Association, of which Dr. H. Rayner is chairman, has worked in the interests of poor persons convalescent or recovered from institutions for the insane for very many years.

[2] The first "recovery-rate" quoted by Dr. Kidd is estimated by a percentage of cures based on the whole number of patients resident in the hospital; for the second basis the percentage is reckoned on the total number of cases admitted during the year irrespective of their nature, making it appear that only one-third of those who become mentally afflicted recover. According to Dr. Kidd, the publication of the recovery-rates in each particular form of mental disorder would show that of acute and recent cases that hold out any reasonable prospect of cure a very large majority recover.—ED. L.

INDIA.

(FROM OUR OWN CORRESPONDENT.)

INDIAN SCIENCE CONGRESS: OPENING CEREMONY.

Lord Willingdon, Governor of Madras, has formally opened the Indian Science Congress, which, for the second time during its eight years of existence, was held in Madras. The interesting ceremony took place in the Senate Hall, Chepauk. The idea of the Congress owed its origin in 1914 to Dr. Simonsen of Madras and Mr. P. C. MacMahon of Lucknow; it has survived the war and now appears to grow steadily in importance. Its aims are (1) to furnish opportunities for scientific workers themselves to get in touch with men working on allied subjects; (2) to encourage research; and (3) to make knowledge accessible to the general public. The very large gathering at the Senate Hall included representatives of all classes of the community. Lord Willingdon welcomed very warmly the members of the Congress, expressing his hope that the discussion would be full of interest and advantage to the cause of scientific research. Wide developments, he said, had occurred in the past year owing to the discoveries of science in industrial, agricultural, and medical life. As Governor of the Province, he spoke of the enormous assistance that these discoveries of science had been to the health and well-being of the people, and to the generally increased productivity of their country. Mr. C. S. Middlemiss—who had become President of the Congress at short notice, Sir Thomas Holland having left India after accepting the appointment—commented in his address on Einstein's theory of relativity, expressing himself as dissatisfied with the attempted explanations of relativity made by Einstein and other physicists and mathematicians. He also dealt with some of the present-day problems of psychical research and psycho-therapy, and concluded his address by discoursing on various mineral and geological problems in the Himalayas, which he and Sir Thomas Holland had recently been investigating.

Session of Jan. 31st.

The business sessions of the Congress opened at the Medical College on Jan. 31st with Mr. Middlemiss in the chair. Owing to the unavoidable absence of Dr. R. Brühl, his paper on "The Cultivation and Utilisation of Indian Medicinal Plants" was not read. The proceedings opened with a paper by Lieut.-Colonel C. A. Gill, I.M.S., chief malaria medical officer, Punjab, on the "Rôle of Climatic Conditions in Epidemic Diseases, with Special Reference to Malaria." Colonel Gill propounded the theory that the factors of temperature and humidity play an all-important part in the incidence of malaria epidemics, and described various experiments he had carried out to support his thesis. A debate followed, in which a large number of members took part. The other papers on the programme were non-medical.

Medical Research Section, Feb. 1st–Feb. 4th.

The Medical Research Section proper opened with the presidential address by Major J. Cunningham, director, King Institute, Madras, on "India's Debt to Medical Research." He drew attention to important advances in medical science so gradually introduced as almost to escape the notice of the people who had chiefly benefited by them. He contrasted medical conditions of more than a century ago with those of the present day, illustrating by means of figures the high mortality from a number of tropical diseases since controlled by the progress of medical science. Lieut.-Colonel J. W. Cornwall, Pasteur Institute, Coonoor, then read a striking paper entitled "The Ultimate Aim of Medical Research," in which he suggested that far too much time had been spent in investigating pathological processes of declared disease, and in trying to elaborate cures. Stress was laid on the importance of intensive study of the causes for original deviations from good health.

Kala-azar.

During the four days' session of the Medical Research Section a number of interesting papers were read.

Special mention must be made of the general discussions on "Kala-azar," introduced by a paper from Major F. P. Mackie, read by the President. Many members took part in the discussion. There was a large attendance both of members and of visitors; among the latter were the Hon. Dewan Bahadur P. Ramarayinangar, Minister for Local Self-Government and Public Health, and Mr. F. J. Richards, I.C.S., Secretary, Local Self-Government Department. Colonel E. D. W. Greig read a communication from Mrs. Adie on the new bodies which she had discovered in the salivary glands of the bed-bug, and lantern-slides illustrating these were shown. Major Mackie, in whose laboratory Mrs. Adie has been working, dealt with the controversy now raging round the transmission of the disease; he discussed the work of Patton, Cornwall, and Mrs. Adie, and suggested that the sandfly might possibly be implicated as a carrier of the parasite. The general impression given by later speakers was that the bodies demonstrated by Mrs. Adie could not be accepted without further study, and Colonel W. Glen Liston pointed out that the bodies were similar to those found by the Plague Research Commission in the salivary glands of the flea. The discussion was summed up by Colonel Greig, who pointed out that the problem of kala-azar was far from being solved, and drew attention to the importance of a complete cure to prevent the infection of healthy people.

Jaundice in the Tropics.

The discussion on "Jaundice in the Tropics" was introduced by Lieut.-Colonel Glen Liston, who described various acute epidemics of jaundice in India, and asked the interesting question: "Are these epidemics outbreaks of yellow fever?" being of opinion that their resemblance to yellow fever was sufficiently close to demand careful study. Now that the Panama Canal is open and ships travel direct to India from this region, the question is of the utmost importance, especially as every port in India is infested with *Stegomyia fasciata*, the proven carrier of yellow fever infection. Colonel F. F. Elwes, Professor of Medicine, Medical College, Madras, said he could not recall any epidemic of jaundice in Madras; he held that the few fatal cases of jaundice he had seen were due to a form of acute yellow atrophy. Colonel Liston, in summing up, said he trusted that further study of these mysterious outbreaks would speedily give a solution of their causation.

Helminthology.

The third session of the Medical Research Section was almost wholly devoted to papers on helminthology; a series of four dealing with problems in filariasis were read by Major Cunningham, Major M. M. Cruickshank, and Dr. T. Seethapathy Iyer, all of the King Institute, Madras. In a filarial survey, with statistical inquiry into the relationship of filariasis and elephantiasis, they challenged various conclusions recently published by Stephens and Warrington Yorke. It is certain that more work will have to be done on this subject before a definite opinion can be formed.

Success of the Congress.

The Congress was excellently arranged. Students from the Medical and Presidency Colleges acted as stewards during the meetings and as guides to the members on the large number of excursions in and around Madras. The city bears a reputation for hospitality, and lived up to it during the Congress. The members were entertained by the Governor and Lady Willingdon, by the Hon. Mr. K. Srinivasa Ayyengar, Vice-Chancellor of the Madras University, and by the I.M.S. officers in Madras. On one evening a kinema exhibition of films of scientific interest was given by Colonel Glen Liston and Dr. Kendrick, of the Rockefeller Institute. The films included the following: "What is Disease?" "Unhooking the Hookworm," and "The Mosquito"; members were unanimous in hoping that a more

extensive use should be made of this method of educating the masses in prevention of disease.[1] Medical members were given opportunities of visiting the various large hospitals in Madras, and also the King Institute of Preventive Medicine, Guindy, where a large number of exhibits had been prepared for inspection. Mention must be made of a complete demonstration of a human case of anthrax, infected by a Japanese shaving-brush. The bacillus recovered from the brush was shown, together with sections of the pustule; the patient, a British cavalryman, was present, recovery having been complete after excision of the pustule and the use of Sclavo's serum.

BUDAPEST.

(FROM OUR OWN CORRESPONDENT.)

X RAY WORK IN HUNGARY.

The Question of Apparatus for Deep Therapy.

THE X ray workers of the leading Budapest hospitals recently held a meeting to discuss the present situation as regards radiology. It was pointed out that although excellent apparatus is made in England, America, and France, owing to the rate of exchange (£1 sterling, pre-war value 25 kronen, being now worth nearly 3000 kronen) it is impossible to order apparatus from these countries. The proximity of Germany makes it more advantageous for us to order German installations. Several eminent radiologists maintain that the "radiosilex" apparatus, constructed by Messrs. Koch and Herzel, in Dresden, is the best on the market, leaving nothing to be desired, while others uphold the "symmetrie" apparatus of Messrs. Reiniger, Gebbert, and Schall, of Erlangen. Both really deserve the highest praise, being—alike from the technical and therapeutical standpoints—marvels of mechanical skill. The radiosilex is a very large apparatus, occupying four rooms for generator, transformer, switchboard, and treatment respectively. The transformer permits the use of a very high tension and the production of extremely hard rays, which when used with a Lilienfeld tube (a hot cathode tube, like the Coolidge) are ideal for therapeutic purposes. On account of the high overcharging capacity of the Lilienfeld tube the attainable dose of rays in the time unit is unsurpassed by any apparatus yet existing; it can be worked with 8 milliampères, whereas the second best apparatus works with 2 milliampères only—that is to say, an effect is obtained in 60–80 minutes with the silex apparatus, equivalent to that which has hitherto required four hours' radiation. The "symmetrie" apparatus is somewhat smaller and is also possessed of great advantages. It produces and sustains homogeneous rays—that is to say, rays whose absorption and consequent therapeutic effect are more or less uniform per centimetre of tissue traversed. By means of an accurate measuring apparatus, the exact proportion of the skin dose absorbed at varying centimetre depths can be ascertained, doses lethal to the cancer or sarcoma cells can be given with a fair safety to the patient. At the late Prof. Wertheim's clinic in Vienna there are five installations of apparatus in constant use. Prof. Holzknecht and Prof. Freund, who direct the work there, have several times asserted, both officially and privately, that excellent results in the treatment of malignant diseases are obtainable with these installations, both as regards cure and as regards absence of metastasis.

Prof. Bàla Kelen, who gives radiotherapy preference to surgical interference, lately caused a cancer to disappear after one single sitting. But if the tumours are large or lie deep in the glandular tissue, or if there is cachexia or the formation of metastases, then no good results, he holds, can be obtained either by X rays or by radium or mesothorium.

[1] See the leading article in THE LANCET of March 18th, p. 539.—ED. L.

Radiotherapy of Chronic Malaria.

Dr. Deutsch has treated 27 cases of malaria by applying X rays to the spleen; of his cases, 10 were caused by the tertian, and the 17 others by the tropical parasite. He applied hard tubes, with a 3 mm. aluminium filter, at 20 cm. focus-distance. The spleen region was divided into four parts and X rays were applied three or four times according to the size of the spleen. The single dose was between 9 to 20 units. One to three series were carried out with intervals of seven or eight days; altogether 200 units were given, each spleen quadrant receiving 50 units within from three to four weeks. The seven tertian cases were entirely cured; with the chronic tropical cases results were not as satisfactory. Nine were refractory, four had no attacks for four weeks, and in the four other cases attacks were averted during several months. The theoretical results of the application of X rays—erythropœsis, increased phagocystosis—were not observed and borne out by facts.

Cost of X Ray Installations.

Owing to the rate of exchange the large manufacturing firms which deal in X ray plant are replete with orders from customers in Sweden, Holland, and Switzerland, who have seized the opportunity to buy first-rate installations at a third or quarter of the pre-war price. The depreciation of the mark is thus causing a scarcity of apparatus on the Continent; this fact has induced the German Government to issue an order prohibiting the export of more than 25 per cent. of X ray plant produced in Germany, and imposing a heavy tax on such plant as still leaves the country. The result of this measure is that the Austrian clinics and hospitals have been provided with first-rate apparatus. Medical fees have not risen sufficiently to counteract the depreciated value of money; thus it is impossible for a private practitioner to pay, say, 2 to 2½ million kronen for an installation. Some surplus war apparatus has, however, been distributed among medical men who served with distinction in the war.

March 7th.

SWITZERLAND.

(FROM OUR OWN CORRESPONDENT.)

Sale of the Queen Alexandra Sanatorium.

THE electorate of the canton of Thurgau in a public referendum has decided with 16,725 against 9203 votes to grant a loan without interest of 650,000 francs (about £26,000) to the Public Health Society for the purchase of the Queen Alexandra Sanatorium at Davos. The actual price to be paid is 800,000 francs (about £32,000). The canton of Schaffhausen participates in the purchase with 250,000 francs (about £10,000) on the condition that 25 beds are reserved for patients from that area. The canton of Thurgau has tried for some time to obtain a sanatorium for the people; an attempt to found such an institution at Arosa was frustrated by the intervention of the Kurverein of that place. The present realisation of the scheme is the best possible solution and fulfils all demands. The price is very advantageous; the Queen Alexandra Sanatorium is situated in a position at Davos which is second to none, and is beautifully furnished and equipped. These favourable conditions explain the fact that the electors were quickly ready to give their assent to the purchase. England has thus offered an instrument which will prove very effective in the campaign against tuberculosis.

Prophylaxis of Goitre.

Switzerland is heavily affected with goitre; in some districts a normal thyroid is rarely found. Every year a large number of recruits have to be rejected for goitre or its direct or indirect sequelæ. It is reckoned that the Swiss army loses a division from this cause. Prof. Hedinger, the pathologist of Basle University, recently stated that in over 10,000 post-mortem examinations in the last 13 years he prac-

tically never came across a normal thyroid, and when it was normal it belonged nearly always to a foreigner. It is easy to understand that under such circumstances surgery of the thyroid gland has gained an important position in this country. Kocher, of Berne, laid the foundations for the operative technique which was afterwards further developed by Roux and De Quervain. The operation for goitre is a routine operation in our hospitals which is undergone every year by several thousands of patients. The ætiology of goitre has been studied by a large number of medical scientists but no clear result has been brought forward. For some time the geological theory advocated by H. Bircher was generally accepted, but in recent years several investigators have been able to prove its fallacy. Our ignorance regarding the ætiology was probably the reason why the prophylaxis of goitre was long neglected. Steps are now being taken to remove this reproach. The Federal Health Office has appointed a Goitre Commission which will suggest the best methods for an extensive prophylactic campaign against goitre. Following an American example, Dr. Klinger, of Zurich, has shown what a systematic prophylaxis can do. Under his supervision 761 school children in six villages of the canton of Zurich received during 15 months every week one tabloid containing 10 mg. iodine plus cacao and sugar (chocolate-iodostarin of the Hoffmann–La Roche works). At the beginning of the treatment 90 per cent. of the children had goitre, after 15 months' treatment only 28 per cent.

Public Health Services.

WILLESDEN MUNICIPAL HEALTH SERVICE: A BASIS FOR COÖPERATION.

WE recently summarised [1] the interchange of view between Willesden Urban District Council and the medical practitioners in the Willesden area regarding local public health administration. On March 1st the Council approached the Willesden division of the B.M.A. (to which for brevity we allude hereinafter as the "Association") with the request for a scheme of coöperation. The Association has now replied, by resolution of the division, dated March 21st, submitting the following basis for consideration of the Council:—

1. *Advisory Medical Council.*—Recognition by the Council of an advisory medical body to be elected by the medical practitioners of Willesden and consulted by the Health Committee on all matters affecting the municipal medical services. The modification of the existing service to stand referred to this body in the first instance, the Council to have the final decision.

2. *Municipal Hospital.*—To be restored to its original use as an isolation hospital, other cases to be provided for by arrangement with other institutions.

3. *School Children.*—Routine inspection of all age-groups, as prescribed by the Board of Education, to be carried out in addition to such special inspections as may be determined. All defects other than those in cleanliness, clothing, and footgear, and such special conditions as may be determined, to be referred for treatment to the family doctor, who shall have the right if he thinks that the best course in the interests of his patient to refer the case to be dealt with through the school service. The cost of treatment through the school service to be recovered from the parent in all but necessitous cases.

4. *Maternity and Child Welfare.*—The activities of the centres to be confined, in the first instance, to preventive work, in accordance with the instructions of the Ministry of Health, such work to be gratuitous. Cases requiring treatment to be dealt with on the method indicated above in connexion with the treatment of school children.

5. *Staff.*—Specialist services to be carried on as at present by the Council's part-time specialists. Medical inspection of school children to be carried on for the present by the Council's whole-time medical staff. Vacancies in the clinics to be filled by advertisement and local practitioners (part-time) to have the preference.

We understand that, with the approval of the Association, Dr. W. Lock, Dr. D. V. Muller, and Dr. G. W. R. Skene are standing as medical candidates at the municipal election to be held on April 1st.

[1] THE LANCET, Jan. 21st, p. 150.

THE ISOLATION OF WHOOPING-COUGH.

In this country most of the local sanitary authorities require that persons suffering from whooping-cough shall be isolated for six weeks from the beginning of the illness. Opinions, however, are frequently expressed that, when the catarrhal stage has passed, the patient no longer gives rise to infection. In the forty-third annual report of the Local Government Board 1913-14 for England and Wales, it is stated that:—

"If the bacillus pertussis described by Bordet and Gengou be accepted as the cause of whooping-cough, it is significant that the expectoration contains very few of these bacilli after the first 14 days of illness. The complications, such as pneumonia, which subsequently supervene are due to invasion by other bacilli and streptococci. The observation as to the rarity of the specific bacillus in the expectoration after the first fortnight of the attack gives some support to the opinion, held by some as the result of clinical experience, that the disease is not infectious in its later stages. In New York, where arrangements have recently been made for hospital provision for whooping-cough, it is proposed to discharge uncomplicated cases from hospital when this period of maximum infectivity is over. In practical experience in this country, whooping-cough frequently remains unrecognised during the first 10 or 14 days of the attack."

In view of this statement a communication was addressed to the Commissioner of the Department of Health of the city of New York, Dr. Royal S. Copeland, who has kindly consented to the publication of his reply which reads:—

"The assumption that the Bordet and Gengou bacillus is the cause of whooping-cough is probably correct. While it appears to be undoubtedly true that the period of greatest infectivity exists before the beginning of the whoop and continues for about two weeks thereafter, it has nevertheless not been proved that infection at the expiration of two weeks after the onset of the whoop is unlikely to occur. It, therefore, seems to me that the purely arbitrary quarantine period of two weeks from the definite onset of the disease with or without whoop is probably insufficient for the prevention of the spread of this disease.

"Although the regulations of the health department of the city of New York still conform to this purely arbitrary rule of two weeks quarantine for pertussis, we are considering a modification of this rule in order that we may err on the side of caution and safety in a disease which has come to be recognised as one of the grave communicable diseases. I do not feel satisfied with our present regulations. In the absence of conclusive proof that the Bordet and Gengou bacillus is the cause of whooping-cough, and in the absence of knowledge of the average duration of the period of infectivity in these cases, it is most difficult to commit oneself to the formulation of a quarantine period, which will at one and the same time be based on scientific knowledge, and practical from an administrative viewpoint.

"Supposing that the maximum infectivity in typhoid fever is ended about 10 or 12 days after the temperature has fallen to the normal level, would we be justified, therefore, in making a flat rule for the termination of quarantine in all cases, losing sight of the fact that the continued discharge of typhoid bacilli by even a small number of persons may be sufficient to cause a great epidemic, if overlooked?

"To sum it up, I do not believe that when a child begins to whoop, the infectious stage is over, and I am strongly of the opinion, though I cannot prove it, that even two weeks after the onset of the whoop, many of the cases may still be discharging large numbers of the infectious organism responsible for the disease."

Dr. Copeland concludes with an expression of his belief that most public health bodies have been too lax in the enforcement of compulsory notification and in efforts to effect at least a moderate measure of control in the isolation and quarantine of whooping-cough cases.

CYPRESS OIL IN WHOOPING-COUGH.

In a special report presented to the Poplar Public Health and Housing Committee, the medical officer, Dr. F. W. Alexander, calls attention to the 44 deaths from whooping-cough which occurred in Poplar during the six weeks ended Feb. 11th, and to the doubt as to how many deaths included under the various respiratory diseases were not also due to whooping-cough in its primary catarrhal stage. He then goes on to quote the experience of the late Prof. Otto Soltmann, director of the Leipzig Children's

Hospital, who found that in all cases of whooping-cough, both in older and younger children, cypress oil reduced the number of paroxysms promptly and rapidly, and generally prevented the occurrence of complications. Cypress oil, Dr. Alexander adds, can be taken internally on sugar, in doses of 1 or 2 minims; pastilles, also, are made containing one minim of the oil, or the bedding of the patient may be sprinkled with an alcoholic solution of the oil, one part to four or five parts of alcohol. Cypress oil being scarce and costly, Dr. Alexander suggests its issue to the patient in the form of a liniment mixed with camphorated oil; 2 oz. of this liniment in a poison bottle could be supplied at a cost of 1s. Expenditure would be nearly all recovered through persons purchasing the liniment, as other medical sundries are sold at the maternity clinics. Cypress trees not being scarce, Dr. Alexander concludes that if the oil could be distilled in quantities at low cost, it would be advisable to use it for spraying the air of maternity clinics, schools, and kinemas as a possible preventive during epidemics.

CONTINUITY OF TREATMENT IN VENEREAL DISEASE.

In his report to the sanitary committee of the City of London for the seven weeks ended Feb. 18th, Dr. W. J. Howarth submits a table showing the number of patients suffering from syphilis and gonorrhœa who ceased attending the City treatment centre before completing the course of treatment, and the number of those who completed the course and were proved to be cured. In the case of syphilis the figures were 181 and 95; in the case of gonorrhœa 640 and 312. In other words, not more than one-third of the cases completed their treatment. Dr. Howarth describes this as a most unsatisfactory state of affairs and one which affects practically every treatment centre in the country. He submits that the time is now ripe for joint discussion of a difficult problem and suggests an invitation to the N.C.C.V.D. to call a conference at the Guildhall of representatives of sanitary authorities, Poor-law authorities, and the medical profession, with the object of considering how continuity of treatment up to the point of freedom from infection can be best secured. Such an opportunity would, he thinks, be generally welcomed.

SCHOOL DENTISTRY.

School dental work is steadily growing in popularity with the parents of the children whose teeth are cared for. Mr. C. Doswell Wallis makes this clear in his review of a school dental scheme for West Sussex in the third issue of a little journal entitled *Oral Topics* (January, 1922). This growing popularity has its drawbacks when the call for economy dogs the footsteps of the hygienist. In Hampshire voluntary effort has provided the Eastleigh centre with a dental chair at a cost of £52, but the Education Committee has failed to provide a dentist to use it. The *Medical Officer* in a recent number refers to a very practical suggestion made by Dr. S. Barwise that women should be specially trained to act as dressers to dental school clinics. Dr. Barwise's suggestion is based on the experiences gained in connexion with a school clinic at Chesterfield. The dental dressers there examine the teeth of the children with probe and mirror, chart the intervention required, and select the children to attend the clinic, where they are examined by the dentist, who then marks the work he considers necessary. A certain amount of this work is then carried out by the dresser, such as cleaning, the removal of tartar, polishing, applying dressings, the extraction of temporary teeth where this involves no difficulty, the preparation and filling of simple cavities in the temporary and permanent teeth. This solution of the dental personnel question is admittedly practical, but grave doubt arises whether such work can safely be entrusted to dressers. Some of the objections were stated in our review[1] of the annual report for 1917 of the chief medical officer of the Board of Education. It is most necessary for every school child to pass an inspection by the school dentist, and it seems to be overlooked by the advocate of the scheme outlined above that the proper preparation of cavities in the teeth of a child requires considerable judgment. The methods of dealing with dental disease in children have undergone considerable changes during recent years. Dirty teeth and deposits of calculus are in large measure due to mouth-breathing and the presence of septic roots, and the restoration of nasal breathing, along with removal of septic teeth, is the first stage in well-considered dental treatment. When these are remedied little remains to be done in the way of polishing, cleaning, and scaling. Dressings are only needed for exposed pulps, and the dental surgeon must decide when it is desirable to retain such teeth. Improvement of the teeth of the nation will make slow progress unless it is recognised that the primary function of the school officer is to teach prevention. It should be the duty of the dental nurse to instil this into the minds of children and parents. The causes of tooth decay should be explained, attention drawn to the harmful effects of sweets and soft starchy food, and clear instructions given about the artificial cleansing of the teeth.

[1] THE LANCET, 1918, ii., 891.

THE PROVISION OF DRUGS FOR INSURED PERSONS.

The question of the provision of medicine for insured persons has been arousing considerable controversy in South Wales, and in a recent issue of the *Western Mail* appears a statement that the advent of the chemist has added very materially to the cost of administration. In support of this statement the following reasons are given: the cost of the committee work, in time and money, taken up in considering cases of over-prescribing; the cost of the bureaux which price each individual ingredient of each prescription, make out and check the chemist's accounts; the cost of the prescription forms, which number millions in the larger areas, and the amount paid in dispensing fees. The average fee for dispensing a prescription is at present 4·72 pence, and the sum paid out annually in dispensing fees amounts to nearly as much in the aggregate as the cost of drugs and appliances supplied. The answer to the question, Why was the chemist brought into the Act? is, if we remember aright, that the originators of the insurance scheme consulted high medical authorities in the persons of two regius professors of medicine who strongly advised the separation of prescribing, the province of the physician, from the dispensing of drugs, the province of the pharmacist. But while it is for the good of the insured person that these two arts should be kept distinct, the present system demonstrably leads to extravagance and inconvenience. Insurance practitioners as a whole could not and would not do the dispensing for their insured patients, but the present system leaves much to be desired in its organisation. Just as suggestions have already been made for central combined surgeries, so it would afford one solution of drug difficulties if central dispensaries were established with qualified pharmacists always in attendance. The drug fund is at present financed by the Treasury, and some means of controlling expenditure will always be required, but the method of payment for the chemist's services and for the drugs he dispenses may require reconsideration in view of the urgent need for economy. We doubt, however, whether a salaried service in pharmacy can logically be demanded by those who object to a salaried service in medicine.

NORTH OF ENGLAND OPHTHALMOLOGICAL SOCIETY.

At a meeting of this society held on March 10th the following were elected to the committee: President, Mr. G. H. Pooley, Sheffield; Vice-President, Mr. Thomson Henderson, Nottingham; Treasurer, Mr. Harry Lee, Leeds; Secretary, Mr. Percival J. Hay, Sheffield; Members of Council, Mr. J. Gray Clegg, Manchester, and Mr. A. L. Whitehead, Leeds.

Correspondence.

"Audi alteram partem."

A DIPLOMA IN TUBERCULOSIS.

To the Editor of THE LANCET.

SIR,—With reference to the annotation in your issue of Feb. 25th (p. 390), with regard to the Tuberculous Diseases Diploma (Wales) and to the letters which have since appeared by Sir Robert Philip and others on the same subject, may I say a few words in support of my reasons for regarding this diploma as desirable? Both the comments in your journal and those of your correspondents, although indicating a critical attitude towards the title selected, agree as to the need for fuller post-graduate instruction in tuberculosis, and I am obliged to the writers for their kindness in setting forth their views upon this subject. It will be generally conceded that men work better when they have some concrete goal in view; the setting up of an object to be attained, a standard to be reached, gives point to human endeavour. Some inducement is needed to make it worth while for medical men to devote time, energy, and money to the advanced study of this disease, and the granting of a diploma, after a course of special study and the passing of a standard examination, should go far to supply the motive required.

The real question, then, is whether this diploma should be called a D.P.H. (Tuberculosis) or a Tuberculous Diseases Diploma. It is here that I part from your correspondents. I cannot imagine why a distinction conferred for proficiency in the study of this intricate disease should be regarded as a diploma in public health. Would it be a great advantage to a general practitioner or surgeon to be able to inscribe the letters D.P.H. (Medicine), or D.P.H. (Surgery) after his name? Obviously, such a description would be meaningless. Why then should the tuberculosis physician or the tuberculosis surgeon desire to be classified as an expert in the hygiene of this disease rather than as a specialist in its diagnosis and treatment? I fully appreciate the important bearing of early and accurate diagnosis of tuberculosis upon successful prevention of the disease, as it is only the efficient clinical help of the tuberculosis specialists that can enable the medical officer of health to be aware of the distribution of this disease in his area; but this applies equally to the diagnosis of all communicable diseases. The Tuberculous Diseases Diploma, which has been initiated in Wales, is not a diploma in hygiene, and its distinctive character would be lost by calling it a D.P.H.

As to the complaint that there are too many diplomas, this depends upon the unfortunate circumstance that there are too many diseases. No medical man can hope to cover the whole field, and specialisation becomes increasingly necessary as our knowledge grows.

In conclusion, may I quote one of the obiter dicta from his book on "Pulmonary Tuberculosis," by Sir J. Kingston Fowler: "A diploma in tuberculosis for those who are to deal with tuberculosis is just as necessary as a diploma in tropical medicine for those who are to treat tropical disease."

I am, Sir, yours faithfully,
S. L. CUMMINS.
Professor of Tuberculosis, University College of South Wales and Monmouthshire.
Cardiff, March 13th, 1922.

THE WOOD-HILL FUND.

To the Editor of THE LANCET.

SIR,—The following is the seventh list of subscriptions to the Wood-Hill Fund. A noteworthy feature of this list and of the previous one which was published on March 4th, is the large number of contributions from medical societies, honorary staffs of hospitals, &c. In the two lists there are no less than 17 contributions of this type. These contributions have been of material assistance to the Fund, and if similar bodies of medical practitioners in other parts of the country will follow suit, the total amount required to reimburse Dr. Wood-Hill (£2250) will certainly be obtained.

I am, Sir, yours faithfully,
HAMILTON A. BALLANCE,
Hon. Treasurer.
All Saints Green, Norwich, March 18th, 1922.

Seventh List of Subscriptions.

Amount previously acknowledged, £1071 4*s.* 10*d.*

Bedfordshire Division of the British Medical Association (per Dr. E. R. Fasnacht, Hon. Sec.), £1 1*s.* from each of the following: Dr. K. B. Bellwood, Bedford; Dr. G. T. Birks, Bedford; Dr. M. F. Bliss, Luton; Dr. A. Chillingworth, Bedford; Dr. A. J. Chillingworth, Bedford; Dr. R. Coates, Great Barford; Dr. E. R. Fasnacht, Bedford; Dr. R. F. M. Fawcett, Toddington; Dr. F. Garratt, Luton; Dr. B. Glendining, Apsley Guise; Dr. C. I. Harmar, Luton; Dr. H. N. Little, Dunstable; Dr. F. S. Lloyd, Luton; Dr. W. G. Nash, Bedford; Dr. W. K. Parbury, Sharnbrook; Dr. Kilham Roberts, Shillington; Dr. E. C. Roberts, Bedford; Dr. Colby Sharpin, Bedford; Dr. W. A. Sharpin, Bedford; Dr. A. E. Street, Cranfield; Dr. C. G. Welch, Bedford; 10*s.* from Dr. C. K. Toland, Dunstable	22	11	0
Members of Derby Medical Society (per Dr. Charles E. Potter, Hon. Sec.)	21	15	0
Kensington Division of B.M.A. (per Mr. Howard M. Stratford, Hon. Sec.)	21	0	0
Hon. Staff of Sheffield Royal Infirmary (per Dr. A. G. Yates, Hon. Sec.)	20	0	0
Sir Charles Ryall, C.B.E., London (second donation); Medical Board of David Lewis Northern Hospital, Liverpool (per Dr. J. Murray Bligh, Hon. Treas.); Nottingham Panel Committee (per Dr. G. S. O'Rorke, Clerk to Committee); Medical Staff of Oldham Royal Infirmary (per Mr. W. R. Cammock, Hon. Sec.) each	10	10	0
Hampstead Division of B.M.A. (per Mr. Sidney Boyd, Hon. Sec.)	7	13	0
Rugby and District Medical Society (per Mr. H. E. Powell, Hon. Treas.)	6	10	0
Mr. James Berry, London	5	5	0
Drs. F. P. Bush and W. Burton Marshall, Norwich; Mr. W. E. Ranson, Needham Market; Dr. A. Alan Forty, Shenington; Dr. T. Cuming Askin, M.B.E., Alderton; Dr. Gerald H. Davy, O.B.E., Hull each	2	2	0
Dr. C. Colgate Holman, Northampton; Dr. Arthur Perigal, New Barnet; Dr. Emily S. Cooke, Sutton; Dr. J. J. Johnstone, Tillicoultry; Dr. H. W. Teague, Sheringham; Dr. David Ferrier, Luton; Dr. Allan Porter, Gorleston-on-Sea; Dr. Robert Stirling, Perth; Dr. C. C. Scott, Twickenham each	1	1	0
Late subscription from Fife Branch of B.M.A. (see list published March 4th) (per Dr. D. Elliot Dickson, Hon. Sec.); Mr. H. W. Webber, Tasmania each	1	0	0

COMBINED METHODS IN THE TREATMENT OF CANCER.

To the Editor of THE LANCET.

SIR,—Dr. J. C. Mottram's criticisms of the Erlangen technique in its original form, contained in his letter in THE LANCET of March 4th, would appear to be in some respects justified. He rightly states that the resistance of tumours microscopically similar may vary enormously, and that to speak of a "lethal dose for cancer" as being 90–110 per cent. of the erythema dose in all cases cannot be accurate.

I notice, however, that in Dr. R. Morton's article in your issue of Feb. 25th there is no mention of lethal doses; on the other hand, there is a recognition of the fact that healthy tissues may be stirred up to attack cancer cells by appropriate doses of X rays. More important still, it is admitted that the general health of the patient must be such as to permit him to "react." We also find the very important statements that after a dose of X rays healthy cells recover more quickly than cancer cells; and "second doses" are also mentioned. Although he says nothing about the power of X rays in suitable doses to raise immunity, or conversely about their capacity to reduce it if the dosage be too heavy, he admits that Erlangen methods, unmodified, are unsuitable when there is metastasis, and that cases which have been operated on do not do well. In general, this latest paper shows what may be called, to use a political analogy, a movement towards the right; to appreciate the extent of this movement, a comparison should be made with the claims advanced a year ago in which the phrase "single lethal dose" was of frequent occurrence, and between 70 and 80 per cent. of clinical cures were claimed both in breast and uterine carcinoma.

When will it be realised that there is no such thing as "cancer," but only "cancers?" The disease is protean, polymorphic, hydra-headed—what you will. No one treatment can "cure" it, even in the clinical sense. The Erlangen reputation has been largely won in the treatment of carcinoma of the uterus in that type of patient which in this country would be looked on as a good surgical risk. The Erlangen people themselves are very non-committal as to results in any other form of the disease—e.g., carcinoma of the breast and stomach. So far as the early uterine case is concerned, if it is to be dealt with by X rays alone the Erlangen technique should be strictly followed until some better method is worked out. For all else, those of us who have been dealing with cancer by X rays for the last dozen years may be permitted to use high-voltage apparatus in our own way.

The manifesto issued by the British Association for the Advancement of Radiology and Physiotherapy (the "B.A.R.P.") in August last stated that the principal credit due to the Erlangen school was that they had perfected apparatus for the sustained production of X rays at a higher potential than it had hitherto been customary to use, and that they had carefully systematised already known means of measuring dosage. Nothing has happened since then to make it necessary either to add to or take from this statement. The manifesto also stated that "combined treatment offers best prospect of cure." A case of breast cancer sent to the present writer as inoperable on account of fixation responded remarkably to repeated doses of X rays, in that the lump was reduced in a few weeks to half its former size, and became movable. Pain, however, remained. A consultation was held with a surgeon, and it was decided to remove the lump without attempting any extensive operation. This was done and the pain disappeared. This patient is at the moment free from discomfort and able to go about her daily affairs. She was very ill when first seen, and an application of penetrating X rays on the single dose principle would almost certainly have killed her. She is in all probability already the victim of metastatic deposits, which, however, may remain inactive for some time, whereas an intensive X ray dosage would have stirred them into activity by lowering the general resistance.

Both the highly penetrating ray and the intensive dose have their place in the treatment of cancer—are, in fact, nowadays indispensable. But to suppose that in themselves they form the only useful method of radiotherapy in cancer is a dangerous delusion. The radiologist has reached a point when he may justly claim equality with the surgeon in the treatment of cancer. But this equality is general, not particular—in dealing with some types the surgeon will remain, in others the radiologist will become, predominant; but, for the most part, X rays, radium, and electricity—not to speak of hormones and vitamins—will need to be combined with surgery in order that the best results may be obtained. Nature does not recognise specialties. I am, Sir, yours faithfully,

F. HERNAMAN-JOHNSON.

Harley-street, W., March 16th, 1922.

PS.—Since returning the proof of this letter I have read Dr. Douglas Webster's communication in THE LANCET of March 18th. It will be seen by anyone reading the two letters that they agree in many ways to an extent which might almost suggest collaboration. I was, however, quite ignorant of the contents of Dr. Webster's letter, and he of mine. The fact is that men who look at these various developments with a level gaze cannot fail to see that no one method can hold the field in the treatment of cancer. Not only may histologically similar tumours differ in response, but the same tumours may vary in susceptibility from time to time. The response of the healthy surrounding tissues and of the body as a whole varies in accordance with many factors, not all of them known; but hormones and vitamins certainly play a part. I was glad to see that, according to Dr. Webster, the Erlangen School are now paying great attention to the conservation of the blood; but I fear that not all their would-be followers take equal precautions. "Penny-in-the-slot" methods may succeed at times, but are bound ultimately to fall into discredit. Every case of cancer presents a problem for careful individual study, often calling for more knowledge than can be stored in any single human mind.—F. H.-J.

MOLLUSCUM CONTAGIOSUM.

To the Editor of THE LANCET.

SIR,—My notice has been drawn to a paper on human and avian molluscum by M. Borrel [1] published last year. The article concludes: "The tumour of molluscum contagiosum so benign and so modest in human pathology has nevertheless a theoretic interest of the first order." In my own experience the biopathology of molluscum explains the cell-inclusions of cancer, syphilis, small-pox, &c., on the one hand, and also the filtrable organisms on the other hand. Borrel found avian molluscum easy to study experimentally. He comes to one conclusion that I know to be incorrect: that the molluscum body is a symbiotic cell. As a matter of fact, the simplest water-cultures in a few days afford proof that the whole molluscum body is a parasite. It is the most typical of the group of protists for which last year [2] I suggested the name 'Plassomyxineæ," and I would name it *Plassomyxa contagiosa*.

In making new names in biology, the rule is to define their application in Latin of some sort, hence I submit the diagnosis: *Plassomyxineæ, nomen novum, applicandum quædam ad protista parasitica et pathogenica, genus Synchytrium affinia, quæ interdum in statu plasson dicto sunt.* All biology is viewed in relation to the cell-theory, which, true as it may be for metazoa and the higher plants, is false in relation to some phases of protists; for instance, in the genus *Synchytrium* such as that species which causes wart disease of potatoes new cells (zoospores) are produced in one kind of sporange from a plasson plasmodium, in other words by free cell-formation. This term, rightly discarded for higher organisms, has proved to be prophetic for some protists.

This flaw in the cell-theory has sterilised official search for the causal agent in cancer, &c., for 70 years, and so it must be as long as "*Omnis cellula e cellulâ*" is not generally recognised to be too wide a generalisation.—I am, Sir, yours faithfully,

J. JACKSON CLARKE.

Portland-place, W., March 18th.

COLLOIDAL ANTIMONY: A CORRECTION.

To the Editor of THE LANCET.

SIR,—By an unfortunate inadvertence a letter from Dr. F. G. Cawston of Durban, S. Africa, intended by him as a purely personal one to ourselves, was reproduced in extenso under "Oscol" Stibium in the 1922 edition of our "Ephemeris Pharmacologica." We feel it only just to Dr. Cawston to acquaint you with this unintentional misuse of what was intended to be a confidential communication. Unfortunately, in addition, a printer's error gave "*microscopic* parasites in man" where "*macroscopic*" was meant in the original. We think it only right to point out that through our own error Dr. Cawston's expression of opinion, given to us privately, has been published as a statement of fact, and we have duly expressed to him our apologies.

We are, Sir, yours faithfully,

OPPENHEIMER, SON & CO., LTD.

179, Queen Victoria-street, London, E.C. 4, March 14th.

*** In a private letter to us Dr. Cawston also disclaims a statement attributed to him in the medical press that "doses up to 12 c.cm. of oscol stibium, when injected *intramuscularly*, produced no local reaction and no general toxic effects."—ED. L.

[1] M. Borrel: Bulletin de la Soc. Française de Dermatol. et Syphiligraphie, 1921, No. 6, Réun. de Strasbourg.

[2] J. Jackson Clarke: THE LANCET, 1921, ii., 195.

THE PERNICIOUS VOMITING OF PREGNANCY.

To the Editor of THE LANCET.

SIR,—Dr. Arthur F. Hurst in his paper on this subject in your issue of March 18th makes no mention of a well-known chemical test for toxæmic conditions of pregnancy—viz., the estimation of diastase in the urine. I believe it is now established that a pronounced increase of diastase occurs in most toxæmic conditions in pregnancy. I have certainly found it so on many occasions, but have not had opportunities of examining for it in cases of pernicious vomiting.

It would be very interesting to ascertain whether, amongst the physiological changes associated with pernicious vomiting of psychological causation, as described by Dr. Hurst, any increase in diastase excretion occurs. The increase in ammonia and development of diacetic acid are, of course, easier to understand, but except perhaps as a sequel to undue concentration of the urine, one would not expect an increase of diastase. If, therefore, in cases of the type described by Dr. Hurst there prove to be no increase of diastase this might serve as an important diagnostic point in the differentiation between vomiting of psychological origin and that due to a true toxæmia.

I am, Sir, yours faithfully,

ARTHUR F. SLADDEN.

Beck Laboratory, Swansea, March 19th, 1922.

GRADE A (CERTIFIED) MILK.

To the Editor of THE LANCET.

SIR,—In your issue of March 18th Mr. R. Borlase Matthews states, in reference to Grade A (Certified) Milk, "the selling price is very much below that of many of those patent baby foods, which are composed chiefly of dried milk." This statement, as far as "Glaxo" is concerned, is certainly not correct. The cost of Grade A (Certified) Milk is 8*d.* per pint or 1*s.* 2*d.* per quart. Milk prepared from "Glaxo" costs 6½*d.* per pint, and a bacterial purity many times that of Grade A (Certified) Milk is guaranteed.

I am, Sir, yours faithfully,

H. JEPHCOTT.
Chief Chemist.

Research Laboratories, Glaxo House, Osnaburgh-street, London, N.W. 1, March 20th, 1922.

THE IMPORTATION OF SURGICAL INSTRUMENTS.

To the Editor of THE LANCET.

SIR,—A letter recently appeared in THE LANCET with regard to the importation of German X ray and electro-medical apparatus, and we should like to draw the attention of the medical profession to the fact that the same conditions apply to the surgical instrument industry. The training of the highly skilled workmen in this trade involves an apprenticeship of six or seven years, and the remuneration has never been high as compared with less highly skilled work. The making of surgical instruments is really a handicraft and does not lend itself to "mass production." In following the progress of modern surgery new models are being constantly evolved and older ones discarded. The variety of the work is phenomenal, as may be seen by reference to any instrument maker's catalogue.

At the present time there is much "short time" and unemployment among a most deserving set of men, due in great measure to the importation of German instruments, which, owing to the difference in exchange, are being offered at or below pre-war prices. It should be noted that such instruments are not equal to the high standard of British manufactures.

I am, Sir, yours faithfully,

G. R. CHEESMAN.
Hon. Secretary, Surgical Instrument Manufacturers' Association (Inc.).

March 16th, 1922.

Medical News.

UNIVERSITY OF OXFORD: *Radcliffe Travelling Fellowship.*—David George Turner Kerr Cross, B.M., St. John's College, has been elected to a Radcliffe Travelling Fellowship.

UNIVERSITY OF LIVERPOOL: FACULTY OF MEDICINE.—At examinations recently held the following candidates were successful:—

FINAL EXAMINATION FOR M.B. AND CH.B. DEGREES.

Part I.—J. S. Bradshaw, M. Cohen, W. R. H. Ellis, E. Fisher, D. Flenley, A. B. Griffiths, J. Hallam, G. M. Hughes, G. H. Mann, Phyllis Marsh, T. V. O'Brien, D. U. Owen, R. A. Roberts, Helen Standring, J. G. Thomas, H. Walker, and A. E. Wall.

Part II.—J. O. Edwards, R. C. Gubbins, W. D. Jeans, T. Knowles, P. Madan, and J. R. Parry.

DIPLOMA IN PUBLIC HEALTH.

H. T. Hughes, H. E. Marsden, and Nellie Wall.

DIPLOMA IN TROPICAL MEDICINE.

J. R. Bhatia, E. R. W. Gilmore, A. R. Jennings, S. H. Paul, J. Pinder, Gladys Rutherford, and Q. Stewart (recommended for the Alan H. Milne Medal).

DIPLOMA IN MEDICAL RADIOLOGY AND ELECTROLOGY.

J. E. Bannen, A. Y. Fullerton, and E. S. Gawne.

UNIVERSITY OF MANCHESTER.—A Fellowship for the encouragement of research in preventive medicine has been instituted in memory of the late Prof. Auguste Sheridan Delépine by the addition of the emoluments of the former Junior Research Fellowships in Public Health to the interest derived from an endowment of £1000 made by Dr. Charles Slater, of Tunbridge Wells. The regulations, which have now been approved, provide for a Fellowship of £300 to be offered biennially and to be open to competition by candidates who are graduates in medicine of this or any other approved University, or who hold an approved registrable medical qualification.

The following appointments have been made: Lecturer in Ophthalmology: Dr. J. Gray Clegg; Clinical Lecturers in Ophthalmology: Dr. H. H. McNabb and Dr. John Wharton.

DIPLOMA IN PSYCHOLOGICAL MEDICINE.—The third course of Lectures and Practical Courses of Instruction will begin at the Maudsley Hospital, Denmark Hill, London, S.E. 5, on April 3rd. It will include lectures by Sir Frederick Mott, F.R.S., Dr. Bernard Hart, Dr. F. C. Shrubsall, Dr. W. C. Sullivan, Dr. C. H. Bond, and Dr. E. Mapother, with clinical demonstrations in neurology by Sir Frederick Mott and Dr. F. Golla.

ROYAL COLLEGE OF PHYSICIANS OF LONDON.—An extraordinary Comitia of the College was held on March 15th, Sir Norman Moore, the President, being in the chair.—Licences to practise physic were granted to Ruth Wade Plimsoll, Royal Free Hospital, and Tristram Albert Seton Samuel, London Hospital.—Communications were received from (1) the secretary of the Royal College of Surgeons reporting proceedings of the Council of that College; and (2) the executors of the will of the late Lady Clark, dated Feb. 28th, asking whether the College will accept the bequest of a portrait of the late Sir Andrew Clark, formerly president of the College, painted by Frank Holl, R.A. This was accepted with the thanks of the College to the executors.—Recommendations were received from the committee of management: (1) that the Boys' Intermediate School, Aberdare, be added to the list of institutions recognised for the study of chemistry, physics, and biology; and (2) that St. Dunstan's College, Catford, be added to the list of institutions recognised for instruction in chemistry and physics. These recommendations were adopted.—The following reports were also received from the committee of management: (*a*) a recapitulation of the draft rules in respect of examinations for the diploma in Public Health, proposed by the General Medical Council, and submitted to the last College meeting, together with observations which it is suggested that the College should make upon them. (*b*) A recapitulation of the draft recommendations in respect of (qualifying) professional examinations, propounded by the General Medical Council, and submitted to the last College meeting, together with observations which it is suggested that the College should make upon them. (*c*) Provisional new regulations for candidates for the licence of the College, and the membership of the Royal College of Surgeons, based on the proposed course of study and examinations which was adopted at the last meeting of the College. The suggestions made by the committee were discussed, and after some slight alterations were adopted.

FEDERATION OF MEDICAL AND ALLIED SOCIETIES.—An extraordinary general meeting of the Federation will be held on Tuesday next, March 28th, at the offices of the Federation, 12, Stratford-place, London, W., at 5 P.M., the business being to consider certain changes in the articles of association.

INSTITUTE OF APPLIED PESTOLOGY.—The constitution of the recently formed institute (to whose formation we referred in THE LANCET, 1921, ii., 1198) has now been drawn up, and the objects of the organisation defined as follows: To wage war by all possible means on vermin and all pests inimical to man's welfare, and to enlist the help of scientists, medical officers of health, sanitary officers, manufacturers, chemists, and others, and the public generally, in the cause of hygiene, well-being, and self-preservation of humanity; and to endeavour to coördinate the work of scientists and manufacturers, &c., to this purpose. The address of the institute is now 29–30, Charing Cross, London, S.W. 1.

NURSING SERVICE OF MENTAL HOSPITALS.—The Board of Control have, with the approval of Sir Alfred Mond, the Minister of Health, appointed the following persons as a committee to consider the nursing service in county and borough mental hospitals, and in what directions it can be improved: Dr. C. Hubert Bond, C.B.E. (chairman), Commissioner of the Board of Control; Dame Louise Gilbert Samuel, D.B.E., member of the Chelsea borough council; Mrs. How-Martyn, chairman of the Middlesex County Mental Hospital (Wandsworth) Visiting Committee; Mr. E. A. Medus, chairman of the Surrey County Mental Hospital (Netherne) Visiting Committee; Dr. H. Wolseley-Lewis, medical superintendent, Kent County Mental Hospital, Maidstone; and Dr. G. F. Barham, medical superintendent, London County Mental Hospital, Claybury. The name of a matron of a mental hospital is to be added.

NATIONAL LEAGUE FOR HEALTH, MATERNITY, AND CHILD WELFARE.—The annual general meeting was held at Carnegie House, Piccadilly, London, W., on March 16th, Dr. Harold Scurfield presiding. Capt. W. E. G. Bowyer, M.P., who spoke on the Children of Unmarried Parents Bill, said that from feudal times right down to last year the subject had always been dealt with under the word bastardy, and there had been a tendency to regard it as one of those matters which it was better not to inquire into too closely. Ours was the only civilised country left which had no power to legitimise children by the subsequent marriage of the parents, and it was time that we should have the first instalment of the necessary legislation on the Statute Book. It must be carefully considered whether legal sanction when introduced should not be retrospective, otherwise those children whose parents married before the passing of the Act would be penalised. The great difficulty was the question of succession to property, but even if very limited rights of inheritance were granted, the child's legitimation should be secured. The promoters of the Bill, first introduced by Mr. Neville Chamberlain, and afterwards taken on by himself in its amended form, had now persuaded the Government to introduce their own measure, and if the present Parliament lasted out the year there was a good chance of its passing into law.

Sir George Newman's subject was the Value of Voluntary Effort in Maternity and Child Welfare, and he paid a warm tribute to the work carried on up and down the country by the National League and its constituent sections. The problem of the mother and young child was the most important problem of national health; a nation that took care of its mothers was beginning at the right end, and working on biologically sound lines. Though the Government was now dealing with matters concerning maternity and child welfare on a large, though not an extravagant, scale, it was to the voluntary societies that the largest share of credit belonged for the reduction in the death-rates of infants and young children. The real way to tackle these problems was on a voluntary basis. The State's help was necessary because the full complement of voluntary service required was not available, but he looked forward to a time when the State would do less rather than more. He had several reasons for preferring voluntary work: (1) It was economical. The records of the National League showed that there were thousands of people in the country rendering service of a very high standard to the State, without any charge on it whatever. (2) It was originating. Voluntary workers were free to try experiments which no Act of Parliament could entitle them to do. (3) It was propagandist. The Government was necessarily hedged in by rules and laws, and was not able to carry on real propaganda work, which was, nevertheless, a most useful means of educating adults. Finally, voluntary workers were able to bring themselves and their highest ideals unfettered to their task, in a way which was barred to those in official employ, simply by virtue of their position.

ROYAL SOCIETY OF ARTS.—Sir Thomas Oliver will lecture on Alcohol in Relation to Industrial Hygiene and Efficiency, at 8 P.M. on March 29th, at the house of the Society, John-street, Adelphi, London, W.C. 2. Sir Robert Armstrong-Jones will preside.

MANCHESTER SCHEME FOR AIDING VOLUNTARY HOSPITALS.—It has long been known and published that as compared with other great industrial centres Manchester and Salford do not occupy a conspicuously advanced place as supporters of the voluntary hospitals in their area. To take only one example, Manchester and Salford's total contribution for last year was £19,658 and that of Birmingham £63,000. By the penny weekly subscriptions of the workpeople a substantial sum is raised for the Workman's Convalescent Home. At a meeting held at the Town Hall on March 15th, the Voluntary Hospitals Committee agreed upon a scheme for combined action by the Manchester and Salford Saturday and Convalescent Homes Fund and the Manchester and District Hospital for raising funds from employers and workmen at works, warehouses, and other places of employment. Periodic public collections will also be organised.

ST. MARY'S HOSPITALS, MANCHESTER.—At the annual meeting it was stated that the deficit in the year's working was £3400, but even this large sum, it appears, is comparatively less than that of other hospitals in Manchester. Last year the income was £32,284 as compared with £32,082 in 1920, and the extraordinary expenditure £1284 compared with £1054. Legacies amounted to £11,003; unfortunately it was necessary to use over £3000 of this sum to meet the deficit on income. During the year 15,912 patients were treated. The other work of the hospital in training medical and nursing students progressed satisfactorily and much district work was carried on in the homes of the poorest dwellers in Manchester and Salford. The chairman indicated that the principle of the appointment of women to serve on the board of management had been accepted, and that before long two women would be placed on the board.

THE LATE DR. JOHN INNES.—Dr. John Innes, who died at his residence in Aberdeen on March 5th, was only 53 years of age, but had been in indifferent health for some time. A native of Glenlivet, Banffshire, he was at first apprenticed to a firm of wholesale druggists in Aberdeen, and after some experience in the south started business on his own account in Aberdeen. Always determined to take a medical degree, he attended classes at Marischal College and graduated M.B., C.M. Aberd. in 1896. Thereupon he took up general practice, and gradually became widely known as a medical practitioner in the city. Dr. Innes was for ten years one of the medical officers attached to the Aberdeen dispensary, and was interested in ambulance work. In 1905 he became a lieutenant in the R.A.M.C. and served during the first two years of the war, retiring on account of ill-health with the rank of major. Dr. Innes's wife, who had been seriously ill for some months, died on the day he was buried without knowing of her husband's death. They are survived by two sons, one of whom is in practice in Aberdeen and was recently appointed an assistant to the Aberdeen Royal Infirmary.

JENNY LIND HOSPITAL FOR CHILDREN, NORWICH. This hospital has an interesting history. Jenny Lind gave two concerts at St. Andrew's Hall, Norwich, in 1849, and expressed a wish that the proceeds should be devoted to founding a new charity for the poor of the city. The original hospital thus founded was situated in the centre of Norwich, but was supplanted in 1900 by an up-to-date modern hospital erected on the outskirts of the city. The annual report for 1921 states that great progress has been made, and a record established in every department. The number of children admitted as in-patients during the year was 993, the daily average number of beds occupied being 46·7, the operations in hospital 476, dressing and casualties in the receiving room 776. In the out-patient department there were 2757 new cases, 14,427 attendances, and 404 operations. The committee expressed themselves as gratified by the large number of cases stated to be "cured"—viz., 75 per cent.; 7·5 per cent. were marked "relieved"; 8·5 per cent. discharged for special reasons or remained in statu quo; 5 per cent. died; and 4 per cent. remained in hospital at the end of the year. The total cost of maintenance and administration for the year was £6627, which the committee considered was not excessive, taking into account the fact that the patients have nearly doubled in number since 1914 and that the average cost per in-patient case (£6 7*s.* in 1921) was an increasing one. The total amount received from the Sunday and Saturday Hospital Fund for the year was £2699. A sum of £2000 was borrowed for the purchase of a suitable house, where the night staff and other nurses are now quartered. A surplus of 40 guineas remaining from the Norwich wedding gift to Princess Mary will be given to this hospital.

IRISH NURSES AND PARTITION.—The decision of the Government of Northern Ireland to establish a separate nursing council and nurses register for the six counties is causing anxiety to nurses who work continually or occasionally in the northern area. A meeting of nurses was held in Belfast recently, at which a protest against the proposal was passed. Again last week, at a meeting of the General Nursing Council of Ireland, the protest was renewed and took the form of a resolution, proposed by Sir Edward Coey Bigger, and seconded by Prof. R. J. Johnstone, M.P., which has been forwarded to the heads of the two governments.

CHADWICK PUBLIC LECTURES, BIRMINGHAM.—A course of three lectures, illustrated by lantern slides, on Relative Values in Public Health Work, will be given by Sir Arthur Newsholme in the large lecture hall of the University of Birmingham, on March 27th, 28th, and 29th, at 7.30 P.M. The first lecture will be on Values in Preventive Medicine Historically Considered; General and Specific Sanitation; the second on Current Values in Preventive Medicine and the Relation between Prevention and Treatment; and the third on Methods of Evaluating Public Health Activities; Minimum Standards for Healthy Personal and Communal Life. Further particulars of these lectures may be obtained from Dr. John Robertson, The Council House, Birmingham, and of all Chadwick lectures, from Mrs. Aubrey Richardson, at the offices of the Trust, 13, Great George-street, Westminster, London, S.W. 1.

BUCHANAN HOSPITAL, ST. LEONARDS.—Growing work and increased expenditure, accompanied fortunately by increased income, marked the year 1921 at the Buchanan Hospital. The total income was a record and was brought about chiefly by payments from patients, and as a result the deficit, which at the end of 1920 was £607, has been reduced to £99. The inclusive cost per week per patient was about £3 7*s*. 8*d*. as compared with the pre-war figure of about £1 10*s*. In-patients during the year numbered 375 at a total cost of £5221 12*s*. 10*d*.; out-patients, 625 at a cost of £400. The Buchanan Hospital is to be enlarged as part of the Hastings and St. Leonards war memorial, the rebuilding of the East Sussex Hospital also being included; the whole scheme will cost £62,000. Of this sum only another £2000 is needed for the East Sussex Hospital, and £3000 for the Buchanan. At the annual meeting of the governors of this institution, held on March 8th, a resolution was carried pledging the meeting to use every endeavour to obtain the necessary funds so that a new women's wing can be started next winter.

TUNBRIDGE WELLS GENERAL HOSPITAL.—The ninety-third annual report of the Tunbridge Wells General Hospital was presented at the annual meeting on March 8th. The number of in-patients admitted numbered 1164, exceeding the number in the previous year by 101, and constituting a record for the institution. The patients came from 86 different towns and villages. The total operations performed numbered 1003. The out-patients showed a decline to 4434, making 51,574 attendances, there being included 309 dental cases. In the electrical department 20,579 treatments were given. Workpeople's contributions totalled £2500, as against £460 in 1913, and contributions by patients towards the cost of their maintenance brought in £747. The sum of £1000 is expected from this source annually in future, and, in the opinion of the treasurer, Mr. J. S. Snelgrove, this figure is larger than any system of compulsory payment would produce. The expenditure has fallen some 20 per cent., but still there was a deficit on the year of £2016, and a fund has been promoted to free the hospital from debt and raise the annual income.

ROYAL PRINCE ALFRED HOSPITAL, SYDNEY.—The report of this institution for the year ending June, 1921, tells of good work being done, and of progress hampered by lack of support. The total number of in-patients admitted during the year was 7531, and of these 3087 contributed something towards the cost of their maintenance while in hospital. The out-patients numbered 91,200. When the hospital opened its doors in 1883 there were 146 beds, whereas now there are 518, and it is noteworthy that while in 1884 the mortality per cent. in the hospital was 4·76, it is now only 0·07. As regards the financial position, the deficiency of income over expenditure in June, 1920, was £18,000 with an overdraft at the bank of £32,000. This overdraft has now been guaranteed by the Government, which has also increased the bed subsidy. With the increased demand for accommodation, a higher standard of wages, and a higher cost of maintenance, the hospital is in much the same financial position as it was a year ago, though anxiety has been allayed by the Government guarantee. Among the devices for economy which the management has devised is the making of soap both for general and toilet purposes. The result has been very satisfactory.

ROYAL NORTHERN HOSPITAL.—The annual council of governors will be held in the Board Room of the Hospital, Holloway-road, N. 7, on Tuesday, March 28th, at 4 P.M.

THE Central Association for the Care of the Mentally Defective (Inc.) is now known as the Central Association for Mental Welfare (Inc.). The address of the Association is still 24, Buckingham Palace-road, London, S.W. 1.

THE Italian Silver Medal, "Al Merito della Sanità Pubblica," has been conferred upon Major Myer Coplans, D.S.O., O.B.E., M.D. (by the King of Italy), in recognition of services rendered during the late war.

AN Order in Council directs that summer time this year shall come into force at 2 A.M., Greenwich mean time, on Sunday, March 26th, and shall continue until Sunday, Oct. 8th. This period has been fixed in accordance with the agreement recently made with France and Belgium in order to secure uniformity in the three countries.

LONDON TEMPERANCE HOSPITAL.—The general meeting of members and governors will be held at the Hospital, Hampstead-road, N.W. 1, at 5 P.M., on Wednesday, March 29th. This will be followed at 7 P.M. by a public meeting, with the Marquis of Lincolnshire in the chair, at which Dr. J. Porter Parkinson and Mr. H. J. Paterson are among the speakers.

TUBERCULOSIS SOCIETY.—An ordinary meeting of this society will be held on Monday, March 27th, at the Margaret-street Hospital, Margaret-street, London, W. 1, at 7.30 P.M., when Dr. J. Campbell McClure, the President, will deliver an address on the Place of Pulmonary Tuberculosis amongst the Acute Fevers. A discussion follows on the Supervision of London Tuberculosis Dispensaries by L.C.C. Clinical Officers.

THE LATE DR. HARRIS GRAHAM. — Harris Graham, B.A. Toronto, M.D. Mich., died at Beirut, Syria, on Feb. 27th, in his sixtieth year. He had held the post of professor of pathology and practice of medicine in the American University of Beirut since 1889, previous to which date he served four years under the American Board of Foreign Missions, as professor in the mission medical school at Aintab, until the Turks closed the school. At Beirut he discovered that the culex transmits the causative organism of dengue fever, and was the first to isolate that organism. A colleague describes him as "pre-eminent throughout the Near East as a teacher of rare power, a diagnostician of great accuracy, and a therapeutist of great skill and versatility." Dr. Graham was one of the original members of the Beirut Executive Committee of the Lebanon Hospital for Mental Diseases. This institution, situated at Asfuriyeh, near the town of Beirut, is an Anglo-American charity, the only institution of its kind in all Syria; its central offices are in London. Dr. Graham served as acting director during the absence of the director, and at the time of his death was chairman of the Beirut Committee. He was born at Ottawa, Canada, of Scotch-Canadian parents.

ROYAL MEDICAL BENEVOLENT FUND.—At the meeting of the Committee held on March 14th 32 cases were considered and £453 voted to 28 applicants. The following is a summary of some of the cases considered:—

Widow, aged 55, of L.S.A. Lond. who practised in Gloucestershire and died in 1921. Applicant and three children left unprovided for, and owing to unfortunate sale of the practice finds herself in difficulties. She ultimately sold the practice for £300 and the purchaser is storing her furniture until she can make use of it. As applicant was a trained nurse prior to her marriage she is anxious to get a house on the South Coast and take children whose parents are abroad. She received £20 from the Masonic Lodge and at present is living with a sister who has to work for her own living. Voted £15 in three instalments.

Widow, aged 50, of L.R.C.P. Dub., who practised in South-West London and died in 1919. Applicant has a house at the seaside and lets apartments during the summer months, and in the winter she and her daughter take daily work. They realised £141 8*s*. 6*d*. last year, and the rent and rates came to £66 per annum. The youngest daughter goes to school daily and lives at home. Applicant asks help from the Fund as they are unable to earn sufficient. Voted £20 in four instalments.

Daughter, aged 53, of M.R.C.S. Eng. who died in 1907. Applicant is a trained nurse, but owing to ill-health the work is now too heavy for her and she is now receiving free training to become a health visitor. She asks the Fund for a grant towards maintenance during training. Voted £26 in four instalments.

Daughter, aged 29, of L.S.A. Lond. who practised in London and died in 1894. She wishes to start a preparatory school and asks the Fund to help with the initial expenses. She received last year £107 from teaching. Her mother is in receipt of a grant from the Fund of £18 in 12 instalments. Voted £25 to the Royal Medical Benevolent Fund Guild, who have promised to supplement this by a similar amount if they consider the scheme satisfactory.

Subscriptions may be sent to the Honorary Treasurer, Sir Charters J. Symonds, at 11, Chandos-street, Cavendish-square, London, W. 1.

Parliamentary Intelligence.

HOUSE OF COMMONS.

TUESDAY, MARCH 14TH.

The Schick Test.

Mr. MILLS asked the Minister of Health whether he was aware that certain medical men in his department were pressing boards of guardians to agree to the use of a new method of dealing with diphtheria which consisted in testing workhouse children by means of the Schick test and inoculating those who reacted to the test with a preparation known as toxin-antitoxin; whether he was aware that qualified doctors had expressed their disapproval of the composition of the material used in the Schick test; whether he was aware that the toxin-antitoxin used for immunising purposes had had fatal results in several instances in America; and who was responsible for the introduction of this process, seeing that it had no scientific basis and might cause serious injury and possibly death to those subjected to it.—Sir A. MOND replied: The answer to the first two parts of the question is in the negative. Information as to the Schick test has been published by my department and a number of local authorities and boards of guardians have decided to take advantage of it; but no attempt has been made by the department to press any boards of guardians or other local authorities to adopt it. I am informed that it has been stated[1] that there were fatal cases in Texas, but I am unaware that this was the cause. Such accidents are always liable to occur with any form of treatment which is not properly carried out. I have urged the importance of seeing that when the test is carried out it should be under expert supervision. This method of diagnosis has been before the medical profession since 1913 and has been successfully applied on a large scale in this and other countries. It marks a great advance in our methods of prevention and control of diphtheria.

Small-pox in the Philippines.

Mr. WATERSON asked the Minister of Health whether he had in his possession the figures of the small-pox cases and deaths occurring in the Philippines since those given by Dr. Bruce Low in his report on small-pox issued in 1918.—Sir A. MOND replied: The following figures of the small-pox cases and deaths in the Philippines are taken from the annual reports of the Philippine Health Service, with the exception of the figures for 1921, which are compiled from returns received by the Ministry of Health from the British Consul-General at Manila, as the annual report for that year has not yet been received:—

	Cases.	Deaths.
1915	6,265	216
1916	2,520	554
1917	542	255
1918	47,369	16,447
1919	65,180	44,408
1920	10,448	4,386
1921	1,823	790

Approved Societies and Panel Practitioners.

Lieut.-Col. Sir FREDERICK HALL asked the Minister of Health whether members of the medical profession undertaking work under the National Health Insurance Acts were in future to be controlled by approved societies; and if he was aware of the strenuous objection of the medical profession to any control by approved societies.—Sir A. MOND replied: Under Section 15 (1) of the National Insurance Act, 1911, the arrangements for the provision of medical benefit in any area have to be made between the insurance committee for the area and the medical practitioners in accordance with regulations of the Minister of Health. It is not intended to modify in any way the provisions of this sub-section in the Bill which I propose shortly to introduce.

WEDNESDAY, MARCH 15TH.

ARMY MEDICAL REDUCTIONS.

On the motion that the House do go into committee on the Army Estimates for 1922–23,

Sir L. WORTHINGTON-EVANS (Secretary for War) said medical and dental services had fallen by 189 officers and 1909 other ranks. Of these medical officers 180 were serving in garrisons, which did not exist before the war, but in spite of the reduction he was glad to be able to report that the health of the Army continued to be very good. The number for admission to hospitals for preventable diseases during the present year had reached a lower level than at any time in the history of the Army. In the month of December last it reached the remarkably low figure of 2·5 per 1000. With regard to the Dental Corps they were not filling up the establishments with regular officers until they could be sure of what establishment was required in present conditions. They had reduced the number of equipped beds in hospitals in Great Britain by 4000, but owing to conditions in Ireland they had had to increase the hospital beds there by over a thousand. Steps were being taken by joint action with the Admiralty and the Air Force and the Ministry of Pensions to concentrate patients where economies could be effected and reduce the number of hospitals. Referring to the Territorial Army the right hon. gentleman said that 20 general hospitals and seven casualty clearing stations would be disbanded, and each Territorial division would have one field ambulance instead of two.

Lieut.-Colonel FREMANTLE said he ventured to endorse the remarks that had been made regarding the necessity for closer combination between the Services, more especially as he had made the same suggestions in regard to the Medical Service. In March, 1919, he suggested it primarily from the point of view of efficiency and economy. This had already been forgotten, and the danger was that the War Office might say that it had already been undertaken. It was true that it had already been undertaken in regard to certain obvious crying opportunities for economy and for adjustment and collaboration, as, for instance, in regard to the general hospitals in a few noted cases. There was a much larger question concerned. The whole question of recruiting the Medical Service, both men and officers, was much the same for each of these three Services and that had not been tackled at present. It was the same in regard to the position of medical stores and the provision of hospital ships. Hitherto the Army and Navy had each had their hospital ships. This applied still more to the Services overseas. There were many points on which they could get a great deal of saving by virtue of the fact that they could interchange the officers and the men in the respective Services. He felt that in regard to these Services there was a great deal of need for an independent inquiry *ab initio*.

Lieut.-Colonel NALL, referring to the proposed reductions in the Territorial Army, said that he thought that it was a pity that only one ambulance should exist in a division. There were men who had a wide experience in the matter and who believed that three very small cadres for ambulances would be better than the proposed one ambulance. The same number of men could be divided into the three instead of being collected in the one. The really serious point in the reduction of the medical establishment, however, was the case of the general hospitals. In the present vote the proposal was to reduce no fewer than 23 general hospitals down to three only and to put those on a reduced establishment. There again men who had had very great experience in the organisation of the medical services did not appear to have had any say whatever on this very great alteration in the general hospital policy. He suggested that instead of the present establishment proposed of 10 officers and 100 other ranks in a general hospital, it would be sufficient to have five officers—namely, one commanding officer, one registrar, one officer commanding surgical division, one officer commanding medical division, and one quartermaster and 25 or 30 other ranks; and that one general hospital at least ought to be established in each university town, because it was in the university towns they got the best surgical and medical skill. At the present time in those places the Territorial medical service had got the sympathy of the profession, and it was a profound pity to break with tradition and cut this service down to the three hospitals proposed. Instead of cutting these 23 hospitals down to three he suggested that they should at least be on the basis of one per divisional area, that was 14.

The motion was agreed to.

Seamen and Venereal Disease.

Mr. HASLAM asked the President of the Board of Trade whether, in the interests of the seamen and of the national health, he would at an early date take such steps as might be necessary to amend the Merchant Shipping Act, 1894, Section 160, and the Merchant Shipping Act, 1906, Section 34, so that British seamen suffering from venereal diseases should not incur the disabilities and penalties indicated in such sections.—Sir W. MITCHELL-THOMSON (Parliamentary Secretary to the Board of Trade) replied: The Board of Trade propose to include a clause amending Section 34 of the Merchant Shipping Act, 1906, by deleting therefrom the reference to venereal disease, in the next general Merchant Shipping Bill that is introduced into Parliament. I am advised that Section 160 of the Merchant Shipping Act, 1894, is not applicable in the case of seamen suffering from venereal disease.

The Schick Test.

Colonel WEDGWOOD asked the Minister of Health whether he knew anything of an unofficial and informal conference called by his department to consider the Schick test; whether his department offered to bear the cost of the test and treatment, and suggested to the medical officers present that they should test the children in the institutions under their care;

[1] Journ. A.M.A., 1919, ii., 1778.

whether the children in the Holborn workhouse schools had already been inoculated; whether the Lambeth guardians were now contemplating the same; and under what authority he was carrying out these experiments on children.—Sir ALFRED MOND replied: The answer to the first, third, and fourth parts of the question is in the affirmative. At the conference referred to it was stated that, in order to assist local authorities desiring to use the test to secure reliable material, my department would be willing to bear a portion of the cost in a limited number of cases. As regards the last part of the question, I would refer the hon. and gallant Member to the answer which I gave yesterday to the hon. Member for the Dartford Division.

Mr. GILBERT asked the Minister of Health whether he was aware that the children attending the Norwood schools of the Lambeth board of guardians had been treated with the Schick cure for diphtheria; that such treatment was given without the consent of the guardians; would he state if such treatment had the approval of his department; and also of what the treatment consisted, and from what country it originated.—Sir ALFRED MOND replied: I understand that in the presence of an outbreak of diphtheria in these schools the medical officer thought it necessary to ascertain, by the application of the Schick test, the extent to which the children in the schools were liable to infection, and that this was done as a matter of urgency without the consent of the board of guardians. The answer to the third part of the question is in the affirmative. As regards the last part, I will send my hon. friend a description of this treatment and of its origin.

National Health Insurance Funds.

Mr. WALTER SMITH asked the Minister of Health what was the amount standing to the credit of the National Health Insurance Funds Investment Account; and whether such moneys could be used to meet the economies suggested in the Geddes Report, rather than make additional financial demands on individual societies, some of which were less fortunately placed than others.—Sir ALFRED MOND replied: I assume that the question refers to the total investments of National Health Insurance Fund moneys made by the National Debt Commissioners in accordance with Section 54 of the 1911 Act. The amount in question is approximately £61,000,000. The hon. Member is doubtless aware that these moneys are held in trust on behalf of the individual approved societies and the various subsidiary funds and accounts of which the National Insurance Health Fund is constituted. There are no moneys in the Fund which can be used for any other purposes than those of the individual societies and accounts of whose credits the Fund is made up.

Mr. WALTER SMITH asked the Minister of Health what was the average rate of interest received by the Ministry on the National Health Insurance Funds Investment Account; and to what fund was the balance credited as the outcome of such investment.—Sir ALFRED MOND replied: The average rate of interest earned on the investments of National Health Insurance Funds is at present approximately 5 per cent. Under the regulations as to the investment of funds by the National Debt Commissioners under the National Health Insurance Acts the balance of the interest earned on any securities held by them, over and above the sums required to be credited by way of interest allowed by the Insurance Departments to approved societies, the Deposit Contributors Fund, the Navy and Army Insurance Fund, and other funds and accounts, remains credited to the income account (in the books of the National Debt Commissioners) constituted under these regulations and is used to make good losses realised when any holding or part of a holding in any security purchased on account of National Health Insurance Funds by the National Debt Commissioners is sold or paid off.

Mr. WALTER SMITH asked the Minister of Health what was the total collective sum standing to the credit of approved societies in the National Health Insurance Fund Investment Account bearing interest credited to societies at the prescribed rate of 4 per cent. per annum.—Sir ALFRED MOND replied: The total collective sum standing to the credit of approved societies in the National Health Insurance Fund Investment Account, bearing interest at the prescribed rate of 4 per cent. per annum at Dec. 31st, 1921, was approximately £32,000,000.

National Insurance Contributions.

Mr. NEWBOULD asked the Minister of Health whether, in view of the fact that a member who entered insurance on or before July 1st, 1918, was required to make 80 contributions between that date and July 4th, 1920, before he becomes entitled to benefit under the Act, and whereas the maximum number of contributions possible was 79, he proposed to amend the Prolongation of Insurance Act in order to provide that an insured person who had paid the maximum number of contributions possible between the said dates should become entitled to benefit.—Sir ALFRED MOND replied: The maximum number of contributions possible in respect of the period between July 1st, 1918, and July 4th, 1920, was 105, and not 79 as stated by the hon. Member. It is true that the maximum number would be less in the case of a person who ceased employment before July 4th, 1920, but it is only in the extreme case of a person whose insurance would have ceased during the first week of the operation of the Prolongation of Insurance Act that the requirement of the payment of 80 contributions could not have been satisfied. No such case has yet been brought to my notice, but if the hon. Member can send me particulars of such a case I shall be pleased to consider whether any action is possible.

Captain REGINALD TERRELL asked the Minister of Health whether subscribers of old standing who emigrated automatically lost the benefit of all contributions, and if they returned to this country and were in need of medical attendance they received none at the expense of the State, although they had subscribed in times gone by sums of money from which they had received no benefit; and whether, if this was so, he would consider the desirability of altering this arrangement, which worked very unfairly on individuals.—Sir ALFRED MOND replied: An insured person who leaves the United Kingdom ceases to be entitled to any benefits under the National Health Insurance Acts. If, however, he returns to the United Kingdom within one year his previous insurance is resumed, subject to arrears for the period of absence. If he returns when more than a year has elapsed he re-enters insurance on again becoming employed and becomes entitled at once to medical benefit. The transfer values of persons who cease to be insured, either by reason of emigration or otherwise, are carried to a reserve suspense fund out of which reserve values are provided to enable those who return to insurance to become entitled to the normal benefits at the ordinary rates of contribution.

Medical Benefit Changes.

Colonel BURN asked the Minister of Health if he was aware that the approved societies were proposing to undertake the cost of medical benefit under the National Health Insurance Acts out of the surpluses accumulated during the past years; and if he would state what changes in the control of medical benefit that would entail.—Sir ALFRED MOND replied: I am proposing to introduce at an early date a Bill under which the cost of medical benefit which has hitherto been met by a direct Exchequer grant over and above the normal statutory proportion will be transferred to approved societies in respect of the period ending on Dec. 31st, 1923, and will be met out of their accumulated funds, in which are included the surpluses disclosed at the first valuation and not used for the provision of additional benefits. The Bill will not entail any changes in the control of medical benefit.

Retailers and Milk Legislation.

Sir ALFRED YEO asked the Minister of Health what steps he proposed to take in connexion with the proposed milk legislation to obtain the opinion of the whole of the distributing trade in the interest of clean milk, as a very large section in the retail trade had not been consulted; and, as they formed the greater portion concerned, would they have an opportunity of stating their case before any further steps were taken.—Sir ALFRED MOND replied: I shall be glad to consider the views of any responsible organisations representing the retail trade. I gather that the particular organisation with which the hon. Member is connected is apprehensive that it is proposed to require compulsory bottling for all milk; and I am glad to have this opportunity of saying that I have never contemplated such a provision.

THURSDAY, MARCH 16TH.

Hospitals and Treatment Centres in London.

Mr. GILBERT asked the Minister of Pensions how many hospitals and treatment centres his department were still maintaining in the county of London; where they were situated; how many men were still under treatment, by orders of his department, at hospitals and centres in London; and if there was any immediate prospect of closing down any of the same.—Major TRYON replied: There are five hospitals and nine special medical clinics maintained by and under the direct control of the Ministry within the area of the administrative county of London, of which I am circulating particulars with the official report. In addition, the Ministry is making use of some 50 civil hospitals and treatment centres at an agreed charge for each patient. The number at present receiving treatment at these institutions is approximately 21,000. I am afraid that there is no immediate prospect of closing down any of the institutions under the control of the Ministry in the London county area, though that possibility is constantly kept in view.

Pension Reassessments.

Mr. HURD asked the Minister of Pensions if he would present to the House statistics showing the result of the reassessment of pensions during the past year, that was to say, the number of pensions made permanent, the number in which pensions had been increased, and the number in which they had been decreased, and to what extent.—Major TRYON replied: During the last year the number of pensions made permanent as the result of reassessment was

13,500. Of the cases reassessed 76,000 were raised, 141,000 were not altered, and 349,000 were lowered. The general reduction in average assessment was 4·4 per cent., and is due mainly to improvement in the condition of men suffering from minor disabilities.

Ex-Service Men and Appeals Tribunal.

Mr. JOHN GUEST asked the Minister of Pensions if he was aware that many ex-Service men were, when called upon to appear before the appeals tribunal, in a state of health which prevented them doing justice to their case, and that in some cases they were unable to attend; and if he would undertake to make some financial provision in order that a reasonable fee might be paid to the local doctor, who usually had had the case in hand, or some other person selected by the person appealing, and whose knowledge of the case would assist the tribunal in arriving at an equitable decision.—Major TRYON replied: I understand that provision is made in the regulations of the Pensions Appeal Tribunals for the hearing of a case to be adjourned if the appellant is unable owing to illness to appear; and, if he is likely to be unable to do so for an indefinite time, one or two representatives are appointed by the chairman to visit the appellant and take down his evidence. The tribunal already has power, where any difficult medical or surgical question arises, to obtain a report from a specialist.

The Bloomsbury University Site.

Mr. GILBERT asked Colonel Gilmour, as representing the First Commissioner of Works, whether the site purchased by the Government behind the British Museum had been handed over to the University of London or remained in the hands of the Government; whether the agreement with the Council of King's College upon which the acceptance of the site by the Senate of the University was conditional had been effected; whether any funds had been collected by the University for the erection of permanent buildings on the site; and whether the Government had considered disposing by public sale of the site in the interest of economy.—Mr. HILTON YOUNG (Financial Secretary to the Treasury) replied: The Bloomsbury site still remains in the possession of H.M. Government, and is administered by the Office of Works. A small portion of the site, however, is occupied by the University of London on a subtenancy from the Y.M.C.A., and the University have erected thereon, with the consent of the Government, an Institute of Historical Research. With regard to the second part of the question, the Senate of the University, in accepting the Government's offer of the Bloomsbury site, stipulated inter alia that an agreement should be concluded between H.M. Government, the Council of King's College, and the Senate of the University, as to the terms of the removal of King's College from the Strand to the Bloomsbury site. H.M. Government accepted this condition, but such an agreement has not yet been concluded. As far as I am aware, no funds have yet been collected by the University for the erection of permanent buildings on the site. The answer to the last part of the question is in the negative.

Home Office Inspector and a Vivisection Licence.

Mr. RAPER asked the Secretary for the Home Department whether Lieut.-Col. P. S. Lelean, who had recently been appointed inspector under the Cruelty to Animals Act of 1876, still held a vivisection licence, as was the case in 1920, together with the certificates enabling him to experiment without anæsthetics, and to allow the animals used to recover from the effects of the anæsthetic; and whether, in view of the strong feeling against vivisection which prevailed among large sections of the people of this country, and seeing that the appointment of this gentleman was not in accord with the statement of the first Royal Commission which recommended the passing of the Act, that the inspectors must be persons of such character and position as to command the confidence of the public no less than that of men of science, this appointment could be reconsidered.—Mr. SHORTT replied: Col. Lelean has not held a licence since 1920. He was given a licence after the outbreak of war to enable him to carry out researches for the protection of our troops and held it until 1920, but he only performed experiments under it in 1915, when he held the position of Professor of Hygiene in the Royal Army Medical College, and was engaged in the important work of investigating the remedies for gas poisoning. Col. Lelean has had a long and distinguished career in the Royal Army Medical Corps, and I am entirely satisfied that his character and position are such as to deserve the fullest confidence from the public. I see no grounds for reconsidering the appointment.

FRIDAY, MARCH 17TH.

The Famine in Russia.

On a supplementary estimate of £100,000 for certain miscellaneous war services,

Mr. FISHER (Minister of Education) explained that this vote was asked for in order to enable gifts in kind to be made to the agencies now engaged in relief work in the famine stricken districts of Russia. According to a recent report of Sir Benjamin Robertson, a well-known Indian official with a great experience of Indian famine work, some 15,000,000 or 16,000,000 inhabitants of the Volga district alone were in dire straits. Two British organisations were working in the field—the Save the Children Fund and the Society of Friends. Their work had been well reported upon. The Government had no doubt that the supplies which this supplementary estimate would enable to be sent to those districts would reach their appointed destination. If the work of the British agencies in Russia was not to be entirely wasted an expenditure of £220,000 must be incurred. Towards that the societies had in hand £50,000, of which £20,000 was needed for the cost of forwarding supplies. There was also in hand wheat to the value of £44,000 and the balance of the previous £100,000 given by the British Government to the amount of £29,000. To this had to be added a sum of £16,000 which had just come in from private subscription, and the additional gift of £100,000 of Government food stores which the House was now asked to vote. In view of the uncertainty of the balance to make up the £220,000 necessary for the purpose being forthcoming from private sources in this country, the American relief organisation had been asked by the British Government to undertake the feeding of the adults in the two British areas. An answer had not yet been received, but it was hoped that arrangements would be made which would enable some 300,000 or 400,000 of the adults to be kept alive in the British regions. In more prosperous times the British Government might and would have offered more relief: but at least the present contribution had the commendation that it was a contribution to a well-considered and a well-conducted scheme of relief.

Mr. G. N. BARNES expressed dissatisfaction with the proposals and urged that the vote should be increased to £500,000.

In the course of the debate which followed Mr. O'GRADY, a Labour Member, said that in the district in which he was engaged for some time in administering famine relief 50 per cent. of the population were suffering from trachoma, and through lack of what he was told was a simple remedy for that disease they were going blind at the same time that they were starving. The death roll was in excess of the statistics that were available, for there was no system of registration and many deaths took place of which the local authorities had no knowledge. The hon. Member showed to the House a small flat cake, about an inch in thickness and the size of a palm of a man's hand, and stated that that was a piece of the bread substitute which was consumed by the Russian population. It was made from dried roots, acorns, and dried grass, ground up and sometimes mixed with straw. A little rye flour was mixed with the other materials to make them adhere and when that was no longer available the peasants broke the ice at the sides of the streams and dug up a kind of sweet clay which they used as a substitute.

Mr. CHAMBERLAIN (Lord Privy Seal) said that he agreed that more and more the world was becoming interdependent; but that was not to say that it was our bounden duty to become a kind of Mrs. Jellaby among the nations. Was our first care to be that of people not our own, and were we to act without consideration of the burdens placed upon our own people and our resources to meet distress? The Government did not think they could do more at the present time. The vote was agreed to by 150 votes to 80.

MONDAY, MARCH 20TH.

Drug Traffic in Night Clubs.

Sir CHARLES HIGHAM asked the Secretary for the Home Department whether his attention had been called to the existence in London of disreputable night clubs, where a secret traffic exists in drugs and where alcoholic liquors were obtainable after closing hours; and whether, in view of the evil effects on the young men and women who frequented them, steps would be taken to ensure their suppression.—Mr. SHORTT replied: Whenever information is obtainable as to illegal practice in clubs, whether in contravention of the law as to sale of intoxicating liquor or of the regulations as to dangerous drugs or otherwise, the police are alert to take action. Convictions have been obtained in two recent cases.

NEW SUSSEX HOSPITAL FOR WOMEN AND CHILDREN. This hospital, officered entirely by women doctors, had 322 in-patients during 1921, an increase of 67 over 1920. Out-patients numbered 7219, and over 290 operations were performed. The new premises, Sussex House, Windlesham-road, Brighton, have only been in occupation since August last, the hospital before that time, and since its inauguration in 1912, having been carried on in three small houses connected with each other in another part of the town. But the figures for 1921 point to the need for such an institution. The cost of running the hospital is £4200 a year, of which £900 are provided by subscriptions and donations, and £2400 are expected from patients' payments, leaving £900 to be found from other sources. The deficit for 1921 amounts to £147.

The Services.

CLOSING OF NAVAL HOSPITALS.

It has now been decided to close the naval hospitals at Haulbowline and Pembroke Dock; the naval sick quarters at Sheerness Dockyard have been already closed.

ROYAL NAVAL MEDICAL SERVICE.

Surg.-Comdr. H. P. Jones is placed on the retd. list with the rank of Surg.-Capt.

J. L. Lean and D. Barker to be temp. Surg.-Lts. (D).

ARMY DENTAL CORPS.

The undermentioned Lts. (temp. Capts.) to be Capts: A. Williams and S. A. McCormack.

TERRITORIAL ARMY.

To be Hon. Cols. to the Divns. shown against their names: Hon. Maj.-Genl. Sir B. G. A. Moynihan (ret.), W. Rid. Div.; Col. J. Griffiths (ret.), E. Angl. Div.; Col. J. V. W. Rutherford (ret.), Northern Div.; Lt.-Col. F. J. Knowles (ret.), W. Lancs. Div.; Lt.-Col. Sir W. R. Smith (ret.), H. Counties Div.

The undermentioned officers relinquish their commns. and retain their rank: Maj. E. L. Anderson and Capts. G. Torrance, A. H. Norris, C. C. Robinson, G. S. Melvin, A. B. Pettigrew, J. E. Turle, A. H. T. Andrew, and A. C. Watkin (who is granted the rank of Maj.).

TERRITORIAL ARMY RESERVE.

Maj. A. Coleridge to be Maj.

Capts. H. T. Jones (from Genl. List) and R. D. Langdale-Kelham (from Genl. List) to be Majs.

Col. J. V. W. Rutherford, Lt.-Col. F. J. Knowles, and Maj. (Hon. Maj.-Gen.) Sir B. G. A. Moynihan, having attained the age limit, are retired, and retain their rank.

INDIAN MEDICAL SERVICE.

The King has approved the retirement of Lt.-Cols. G. McI. C. Smith, A. E. J. Lister, T. S. B. Williams, and the resignation of Capt. C. Burnham.

Medical Diary.

Information to be included in this column should reach us in proper form on Tuesday, and cannot appear if it reaches us later than the first post on Wednesday morning.

SOCIETIES.

ROYAL SOCIETY, Burlington House, London, W.
THURSDAY, March 30th.—List of probable papers: H. E. Roaf: The Acidity of Muscle during maintained Contraction (communicated by Sir Charles Sherrington, P.R.S.). The late W. G. Ridewood, D.Sc.: Observations on the Skull in Fœtal Specimens of Whales of the Genera *Megaptera* and *Balænoptera* (communicated by Prof. E. W. MacBride). W. L. Balls: Further Observations on Cell-wall Structure as seen in Cotton Hairs (communicated by Dr. F. F. Blackman). L. T. Hogben and F. R. Winton: The Pigmentary Effector System. I. Reaction of Frog's Melanophores to Pituitary Extracts (communicated by Prof. MacBride). Agnes Arber, D.Sc.: On the Development and Morphology of the Leaves of Palms (communicated by Prof. F. W. Oliver).

ROYAL SOCIETY OF MEDICINE, 1, Wimpole-street, W.

MEETINGS OF SECTIONS.

Monday, March 27th.

ODONTOLOGY: at 8 P.M.
Paper:
Mr. A. Livingston: The Experimental Production of Arthritis.

Tuesday, March 28th.

MEDICINE: at 5.30 P.M.
Papers:
Dr. Oliver Heath: The Natural Cure of a Common Cold.
Dr. T. Izod Bennett and Dr. Dodds: Observations of Cases involving Disorders of Secretion in the Upper Alimentary Tract.

Thursday, March 30th.

UROLOGY: at 8.30 P.M.
Exhibition of Cases and Pathological Specimens.
Paper:
Mr. Kenneth M. Walker: Renal Infections, with an Account of Experimental Work on the Ascending Route.
Members wishing to show cases or specimens are asked to communicate with the Hon. Secretary, Mr. Frank Kidd, 55, Harley-street, as soon as possible.

ROYAL SOCIETY OF ARTS, John-street, London, W.C. 2.
WEDNESDAY, March 29th.—8 P.M., Sir Thomas Oliver: Alcohol in Relation to Industrial Hygiene and Efficiency.

LECTURES, ADDRESSES, DEMONSTRATIONS, &c.

ROYAL COLLEGE OF PHYSICIANS OF LONDON, Pall Mall East.
TUESDAY, March 28th.—5 P.M., Third Goulstonian Lecture: Dr. A. Feiling: On the Interpretation of Symptoms in Diseases of the Central Nervous System.
THURSDAY.—5 P.M., First Lumleian Lecture: Dr. Hector Mackenzie: Diseases of the Thyroid Gland.

WEST LONDON POST-GRADUATE COLLEGE, West London Hospital, Hammersmith-road, W.
WEDNESDAY, March 29th.—10 A.M., Dr. Saunders: Medical Diseases of Children.
Daily:—10 A.M., Visit of Post-graduates to Wards. 2 P.M., In-patient, Out-patient Clinics and Operations.

SOUTH-WEST LONDON POST-GRADUATE ASSOCIATION.
WEDNESDAY, March 29th.—(At St. James' Municipal Hospital, Ouseley-road, Balham), 4 P.M., Dr. S. Wyard: A Pathological Demonstration.

NATIONAL HOSPITAL FOR DISEASES OF THE HEART POST-GRADUATE COURSE, Westmoreland-street, Marylebone, W.
MONDAY, March 27th.—5.30 P.M., Mr. Moon: Congenital Heart Disease.
Daily:—10 A.M. and 2 P.M., Out-patients and In-patients.

HOSPITAL FOR SICK CHILDREN, Great Ormond-street, W.C.
THURSDAY, March 30th.—4 P.M., Dr. Heald: Physical Effects of Respiratory Exercises.

CANCER HOSPITAL, Fulham-road, S.W.
TUESDAY, March 28th.—4 P.M., Dr. Rice-Oxley: The Methods of Anæsthesia.

BRITISH MEDICAL ASSOCIATION (CHESTERFIELD BRANCH) POST-GRADUATE COURSES.
FRIDAY, March 31st.—(At Chesterfield Royal Hospital Board Room) 2.30 P.M., Prof. Douglas: Diphtheria: The Schick Test and Active Immunity. 3.15 P.M., Mr. Finch: Pre- and Post-operative Treatment of Enlarged Prostate.

MANCHESTER ROYAL INFIRMARY POST-GRADUATE CLINIC.
TUESDAY, March 28th.—4.30 P.M., Mr. J. Morley: Some Types of Intestinal Obstruction.

MANCHESTER FRENCH HOSPITAL POST-GRADUATE COURSES, 24, Acomb-street, Whitworth Park.
THURSDAY, March 30th.—4.30 P.M., Mr. A. C. Magian: Contracted Pelvis.

PEOPLE'S LEAGUE OF HEALTH, Royal Society of Arts, John-street, London, W.C. 2.
Course of Lectures on the Mind and What We Ought to Know About It.
MONDAY, March 27th.—3 P.M., Dr. Tredgold: Mental Deficiency.

Appointments.

COLLINSON, F. W., M.D., has been appointed Medical Referee under the Workmen's Compensation Act for County Court Circuit No. 4.

GALLETLY, A., M.B., Ch.B. Edin., Assistant Resident Medical Officer to Queen Charlotte's Lying-in Hospital.

HANNAY, MARY B., M.D., C.M. Glasg., Pathologist to the Royal Alexandra Infirmary, Paisley.

Certifying Surgeons under the Factory and Workshop Acts: ANDERSON, M. C. B., M.R.C.S., L.R.C.P. Lond. (Wool); HULKE, F. M. S., M.R.C.S., L.R.C.P. Lond. (Deal); ROBERTSON, A., M.B., C.M. Edin. (North Riding); PRUEN, S. T., M.D. Durh., M.R.C.S. (Cheltenham).

Vacancies.

For further information refer to the advertisement columns.

Bath Royal Mineral Water Hospital.—Res. M.O. £250.
Belgrave Hospital for Children, Clapham-road, S.W.—Asst. P. 50 guineas.
Birkenhead Borough Hospital.—Hon. P.
Birmingham, Erdington House and Children's Homes.—Asst. M.O. £300 to £400.
Birmingham General Hospital.—Two H.S.'s. Each £100.
Birmingham, Queen's Hospital.—Res. H.S. £90.
Bristol Royal Infirmary.—Surg. and Asst. Surg. H.S. £120.
Cheddleton Mental Hospital, Staffordshire.—A.M.O. £600–£850.
Chesterfield and North Derbyshire Royal Hospital.—Res. Surg. O. and Sen. H.S. £275 and £200 respectively.
City of London Hospital for Diseases of Chest, Victoria Park.—Asst. M.O. £100.
Colchester, Essex County Hospital.—H.S. £200.
Derbyshire Hospital for Sick Children.—Res. M.O. £150.
Dorset Mental Hospital, near Dorchester.—Third Asst. M.O. £300.
East London Hospital for Children, &c., Shadwell, E.—Cas. O. £120.
East Plumstead Relief District.—M.O. £200.

Fareham, Hants, Knowle Mental Hospital.—Sen. Asst. M.O. £550.
Gloucester Royal Infirmary.—Asst. H.S. £150
Hospital for Sick Children, Great Ormond-street, W.C.—P.
Hull Royal Infirmary.—Sen. H.S. £200.
Kensington, Fulham, and Chelsea Hospital, Earl's Court.—Hon. P.
Kirkcaldy Hospital.—Consulting S.
Leeds University.—Med. Tutor and Reg. Also Clin. Surg. Assts. Each £500.
Lincoln County Hospital.—Third H.S. £150.
London Temperance Hospital, Hampstead-road, N.W.—Res. M.O. £200.
Manchester, Prestwich County Asylum.—Asst. M.O. £481 18*s.*
Metropolitan Ear, Nose and Throat Hospital, 2, Fitzroy-square, W.—Clin. Asst.
Norwich City.—Asst. M.O. £42 per month.
Norwich, Norfolk and Norwich Hospital.—H.S. £150.
Paddington Green Children's Hospital, W.—H.P. and H.S. Each £150.
Paddington Hospital, W.—Med. Supt. £856 10*s.*
Prince of Wales's General Hospital, Tottenham.—H.P. and H.S. £200 each. Jun. H.P. and H.S. £120 each.
Queen Mary's Hospital, Stratford.—H.P. £150.
Reading, Royal Berkshire Hospital.—H.P. £200.
Richmond Royal Hospital.—Second Hon. Anæsth.
Rotherham Hospital.—Jun. H.S. £150.
Royal Dental Hospital of London, 32, Leicester-square, W.C.—Hon. Anæsth.
Royal Northern Hospital, Holloway, N.—Pathologist. £300. Asst. Path. £300. Asst. Path. £100. Asst. Radiologist. £250.
St. Mary's Hospital for Women and Children, Plaistow, E.—Res. M.O. £175.
St. Thomas's Hospital.—Dem. of Pathology. £450.
Sheffield Royal Infirmary.—Anæsth.
Southampton Free Eye Hospital.—H.S. £150.
Southern Rhodesia Medical Service.—M.O. £500.
South London Hospital for Women, Clapham Common, S.W.—Asst. P. Anæsthetist. 10*s.* 6*d.* per attendance. Also Dental Surg. £25.
South Shields, Ingham Infirmary and South Shields and Westoe Dispensary.—Jun. H.S. £150.
Throat Hospital, Golden-square, W.—Hon. Surg. Reg.
University College Hospital, Gower-street, W.C.—Surg. Registrar. £250.
Victoria Hospital for Children, Tite-street, Chelsea.—M.O.
Warrington, Lancashire County Asylum, Winwick.—Asst. M.O. £300.
Western Ophthalmic Hospital, Marylebone-road, N.W.—Non-Res. H.S. £150.
Westminster Hospital, Broad Sanctuary, S.W.—Asst. H.P. and Asst. H.S. Each £52.

The Chief Inspector of Factories, Home Office, S.W., gives notice of a vacancy for a Certifying Surgeon under the Factory and Workshop Acts at Chagford (Devon).

Births, Marriages, and Deaths.

BIRTHS.

CALDWELL-SMITH.—On March 18th, at 27, Cliveden-place, S.W. 1, to the wife of Eric Caldwell-Smith, M.B., M.R.C.S.—a daughter.

DAVIS.—At 10, Coates Crescent, Edinburgh, on March 8th, to the wife (neé Gwendolyn G. Hunter, M.B., Ch.B.) of Dr. H. Greenshields Davis, Nottingham—a son.

HILL.—On March 14th, at Dalestead, Caterham Valley, Surrey, to Ruth, the wife of F. T. Hill, M.C., M.R.C.S., L.R.C.P.—a son.

DEATHS.

BOVEY.—On March 11th, at "Winslade," Bampton, Devon, Thomas William Widger Bovey, M.R.C.S., L.R.C.P. Lond., aged 53 years.

WESTBY.—On March 15th, at Brompton-avenue, Sefton Park, Liverpool, George Westby, L.R.C.S.I., M.R.C.P.I.

WILLOCK.—On March 15th, at his daughter's house in London, Richmond Cotts Willock, M.D., C.M., late of Aberdeen, aged 81 years.

N.B.—A fee of 7s. 6d. is charged for the insertion of Notices of Births, Marriages, and Deaths.

THE LANCET: SUBSCRIPTION RATES.

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	Six Months	1	1	0
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} Four Lines and under 6*s.* 0*d.*

Every additional line, 1*s.* 6*d.*

Quarter Page, £3. Half a Page, £6. Entire Page, £12.

Special Terms for Position Pages.

Notes, Short Comments, and Answers to Correspondents.

NATIONAL COLLEGE OF TEACHERS OF THE DEAF.

THE annual meeting of the National College of Teachers of the Deaf was held in the Examination Hall, Queen-square, London, on March 18th, Mr. A. J. Story, the retiring Chairman of the College, presiding. The hall was crowded, the audience being composed of teachers of the deaf and members of the public who had worked in coöperation with them.

After the installation of Mr. G. Sibley Haycock as President for the ensuing two years, an address was delivered by Sir Squire Sprigge, the text of which was the necessity for greater coöperation between medical men and the teachers of the deaf. The speaker warned those who found medical knowledge upon the practical side of education of the deaf largely wanting that it would be quite impossible to extend the scope of the medical curriculum in any way so as to include intensive training in such a subject as the psychology of hearing. The over-crowded medical curriculum, he said, was already under the close scrutiny of the General Medical Council, with a view to its revision and simplification, and no proposal to add a new compulsory subject would be accepted. Medical education was devised, he pointed out, to form a foundation of general knowledge upon which the structures of special knowledge could later be erected, and the only way this could be effected was by post-graduate training, which to-day was recognised as necessary for all medical men. Accordingly he asked whether it would be possible, in centres where the size of the populations would give the material for education and the facilities to carry it out, to institute clinics at which medical men, post-graduate students, who had elected to take out a special course of training in the subject, could meet experts of their own profession, and, at the same time, experienced teachers of the deaf subject. At such clinics, he urged, deaf children should be present, making of the meetings an opportunity for practical demonstrations. In this way, he thought, quite a considerable number of medical men would gain an acquaintance which they did not now possess with the problems which are presented in the education of the deaf, and these would be the men who would employ their special acquirements in union with the teachers. Throughout the address the speaker dwelt upon the sad loss to the community which the uneducated deaf represented. The potential value to the population of a class of persons whose intellectual capacities were almost always normal, and in many cases extraordinarily good, ought not to be lost, he said, while only a physical accident prevented them from entering closely into relations with society. But from doing so they were debarred unless they could obtain special training.

Mr. Frank Barnes welcomed the suggestion for proper coöperation between the medical profession and the teachers of the deaf, regretting that in the past there should have been any obstacles to their union of effort. He emphasised the need for educating deafness in its early stages, pointing out that children frequently came to the schools for the deaf so late that their education presented the greatest difficulty. He asked why there should not be the same compulsory test for hearing in elementary schools as prevailed in regard to sight. Under such coöperation as the lecturer had suggested a fair interplay of knowledge would occur. The teacher, who had the child in observation year by year, would supply an amount of information as to the mentality, psychology, and intellectual chances of the child such as a medical man could not possess, a fact which made it anomalous that with the medical man, and with them alone, the responsibility rested to decide whether the deaf child was mentally deficient.

Mr. Sibley Haycock then delivered his presidential address, in which he spoke eloquently as to the possibilities of expert education of the deaf subject, insisting upon the admirable results that could be obtained if only the training was commenced at the earliest possible date and punctiliously persevered with. He asked for fuller recognition of the position of the teacher of the deaf, who should certainly be regarded as the equal in knowledge of the medical man when questions of special education were at issue.

In the annual report, which was adopted unanimously by the meeting, it was stated that so many graduates from the schools for the deaf were found to be competent to proceed to higher forms of education and training, that the National College of Teachers of the Deaf had prepared a scheme of training which could be run in coöperation with existing polytechnics.

AN ITALIAN METHOD OF TREATING INFLUENZA.

Miss D. C. Bates, of the Freemasons' Hospital, has supplied us with the following description of a method of treatment of influenza:—

"As the pneumonic form of influenza has again appeared in England, the following account of an experience I had in Italy may be of interest. I am a trained nurse with 12 years' experience; two years ago I went to Italy to work for an Italian doctor, and soon after my arrival an epidemic of pneumonic influenza broke out. I was most interested in the way the doctor—who is well known in Milan—treated these cases. As soon as the diagnosis was made, and if the patient had any fever, he gave 10 c.cm. of 2 per cent. carbolic acid intravenously; this treatment he continued once a day as long as the fever lasted.

"I saw dozens of cases treated in this manner. I remember one man in particular, who had been ill 14 days when the doctor was called in in consultation; the man was in a moribund condition with both lungs badly affected. The doctor said, 'I am afraid it is no good giving the injection, but we will try.' This was done, and the patient was left to the care of a priest, who had instructions to give him a hypodemic injection of camphor oil every four hours. The next day there was a slight improvement in the man's condition, and for 14 days the treatment was continued—always with the same quantity, 10 c.cm. of 2 per cent. carbolic—till the temperature was normal. Eventually the patient got perfectly well.

"Sometimes the first injection brought the temperature down to normal, in which case no injection was given the second day; then, perhaps, after 24 hours the temperature rose again, in which case another injection was immediately given and continued till the temperature was normal."

Miss Bates's account is published because it is supported by the signature of Dr. Felice Cova, the Italian physician in charge of the cases.

HEALTH IN BOMBAY JAILS, 1920.[1]

THE number of convicts confined in the jails of Bombay Presidency during 1920 was 127,872, showing a considerable decrease on the jail population in 1919, which had been 149,289; the daily average strength was 13,730, compared with 15,196 in 1919. The ratio of admissions to hospitals was 1094·5, the average daily sick being 30·5 and the deaths 20·3 per 1000; in 1919 these ratios had been 854·9, 27·6, and 23·1 respectively. As usual, there was considerable variation in the different jails. Thus, in the Bombay Common Prison these ratios were 1693·5, 37·8, and 34·6; at Yerauda, 1981·3, 63·1, and 22·5; and at Hyderabad, 1149, 55·5, and 5·2; while at Dhulia they were only 494·4, 19·3, and 13·0; at Karachi 332·8, 20·3, and 15·0; and at Ratnagiri 230·8, 20·0, and 20·5.

Influenza caused 87 deaths (6·4 per 1000); of these, 69 occurred at the Yerauda and Ahmedabad Central Prisons and in the Deccan convict gang. It is noteworthy that not a single case of cholera occurred among the prison population throughout the whole Presidency. For dysentery, so frequently a scourge in prisons, there were 407 admissions but only six deaths (36·4 and 0·5 per 1000); in the preceding year these ratios had been 77·6 and 1·8; the decennial averages (1909–18) for jails throughout India had been 60·7 and 2·97. Warnings were sent to all jails, where there had been prevalence of this disease in 1919, to take extra precautions with regard to water-supply, food, and cooking, and the result was most satisfactory. There was less pneumonia (17·4 admissions and 4·5 deaths per 1000) than in the preceding year (27·8 and 7·4), except in Sind, where the admissions to hospital were 86·3 per 1000 at Shikarpur, 67·0 at Sukkur, and 51·4 among the Sind convict gang.

In 12 jails there was overcrowding, the daily average strength in this group having been 8890 confined in jails with accommodation for 6894. Owing to want of funds the new Central Jail at Kurla and the Under-trial Jail in Bombay could not be started. On the other hand, in the subsidiary jails and lock-ups the average strength (2192) was much below that of the previous year (3085). For the Presidency as a whole, out of the 23,468 prisoners discharged during the year, 61·3 per cent. had gained in weight, only 19·3 had lost, and 19·4 remained stationary. Excellent work continues to be carried out at the Borstal Juvenile Jail, Dharwar, where various industries are taught, and "the attempt is made, and fairly successfully, to create an atmosphere quite different from that of a prison. No fettering, no prison clothing, as much freedom as possible, and trusting the boys." They are said to respond very well to this treatment.

Lieut.-Colonel F. O. N. Mell, C.I.E., I.M.S., Inspector-General of Prisons for the Presidency, at the conclusion of this interesting report, refers to the good work done by the Released Prisoners' Aid Society of Bombay, and trusts that the matter of pay of jailers and warders, which is still "under consideration," will soon be settled.

[1] Bombay: Government Central Press. 1921.

TOLERANCE OF THYROID GLAND.

A CORRESPONDENT writes:—"Some years ago my daughter, then aged about 17, was advised by our family doctor [name enclosed] to take 5 gr. thyroid extract (Burroughs and Wellcome's tabloids) daily for abnormal stoutnesss and bad headaches. She gradually increased the dose herself until she was taking 15 or 20 gr. per day. Occasionally, when her supply of tabloids ran out for a day or two, she invariably had a very bad headache a week or ten days later. A few years ago, on the advice of another medical man whom she consulted for continued stoutness, she reduced the dose to 10 gr. daily, and is now only taking 15 to 25 gr. per week. The doctor also advised a diet of less starchy food. My daughter is a teacher and finds her work is productive of good appetite, so cannot manage on a restricted diet. She has excellent health, and has needed no medical attention till a few weeks ago, when she contracted a severe chill. A third medical man, who attended her, could hardly believe that she had taken thyroid daily for years in such quantities, with no symptoms of over-dosage. She lost her voice owing to the chill, but has never had any palpitation, fainting, or sign of baldness."

REDUCTION OF CIVIL SERVICE BONUS.

THE Treasury having determined the average cost of living figure, for the purpose of revision of Civil Service bonus, to be 105 for the period beginning March 1st, 1922, the Ministry of Health announces that the bonus payable to permanent civil servants as from Sept. 1st, 1921, on wages and salaries not exceeding £500 a year, will be reduced by 5/26ths as from March 1st, 1922. The reduction will apply in the following manner to the reduced bonus payable on salaries over £500 a year. The bonus payable on such salaries will be the amount which was payable from March 1st, 1920 (or which would have been payable had no maximum limit been imposed), less 5/26ths, less the percentage deductions specified in the circular of August 30th, 1921, subject to the following provisos:—

(1) That the total remuneration (including bonus) of officers with basic remuneration exceeding £500 per annum shall not be reduced below £757 12*s.* per annum;

(2) That the bonus on remuneration exceeding £500 per annum shall not exceed a rate which raises the total remuneration above that produced by any higher basic remuneration with the bonus thereon: and

(3) That no bonus shall be payable on basic remuneration of £2000 per annum or more, and that bonus shall not be payable at a rate which shall raise the total remuneration above the rate of £2000 per annum.

The exact text of these very complicated provisions is given in Circular 289 of the Ministry of Health (H.M. Stat. Office. Price 1*d.*).

MATERNAL AND INFANT WELFARE IN INDIA.

REFERRING to Dr. Norman Walker's visit to India to investigate the training in midwifery given at Indian medical schools, and in particular to a lecture delivered by Dr. Walker before members of the Indian Legislative Assembly, Dr. A. D. Jilla, a medical graduate of Bombay University, writes to point out that the thousands of medical students turned out by the universities and medical schools in India, and the hundreds of lady doctors and qualified midwives attending zenanas and other places, are doing a magnificent work in reducing infant mortality in India. It is, he says, a well-known fact that the chief causes of the high rate of infant mortality in India are the lack of hygienic surroundings and the lack of attendance by qualified doctors or midwives during confinement, while the general mass of the population suffers from ignorance, superstitious beliefs, and poverty. Superstition, he points out, soon gives way before education and enlightenment of the public mind, and poverty may be made bearable if reasonable facilities are made by municipalities, provincial governments, and private philanthropists.

"Let Dr. Walker," writes Dr. Jilla, "inquire diligently as to how many maternity hospitals and qualified midwives, never minding qualified doctors, there are in the provinces and districts, how many maternity and child welfare centres have been established by Government, and how many visitors from these institutions visit the confined mothers to see if things are all right and to give necessary instructions for the feeding and upbringing of the infant and the care of the mother. If these institutions and methods are considered essential for enlightened European countries, are they not the more necessary for a poor, silent, and meekly suffering country like India? Difficulties may be experienced in introducing these methods into India, but they would soon give way before steady perseverance when once a start is made. The main difficulty, however, lies in the amount allotted to sanitation and hygiene in the Indian budget: this should be an obligation and a main item on the budget of any country next to education."

THE CENSUS REPORT AND ITS COST.

THE substantive reports will in the first instance be issued in county parts, comprising for each county the bulk of the statistics referred to in the questions relative to the area included. The residue will be issued in the form of subject volumes dealing with foreign-born population, occupations and industries, housing, workplaces in relation to residence, and education; it will appear when tabulation for the country is complete. Following upon the initial operations common to all the returns, work has been undertaken in the county of London and the adjacent counties, and it is expected that the first reports will be issued in the course of the next two or three months. A staff of 419 persons is at present employed at the Census Office, and it is estimated that for the whole period from the date of the Census the total cost of the staff required for tabulating the returns and compiling and preparing all the reports will not exceed £110,000.

FAMINE RELIEF FOR RUSSIA.

OUR Parliamentary correspondent conveys the Government's decision to limit relief of the famine-stricken districts in Russia to the grant of £100,000 worth of stores. Prof. Meredith Atkinson, of Melbourne, who has been investigating conditions in Russia on behalf of the Australian branch of the Save the Children Fund, has reported on the condition in Saratov, where he saw thousands of dead and dying people and where typhus was raging in the refugee barracks. The vast majority of the inmates, with the exception of the children, were receiving no food, and Prof. Atkinson reported evidence of cannibalism. He found the relief organisations efficiently administered as far as the funds permitted. The women's organisations in this country have unanimously petitioned the Prime Minister to supplement the generous private response—the *Manchester Guardian* fund has reached £30,000—with contributions out of national funds. A majority of these organisations have suggested that Great Britain's contribution should be sent in the form of coal and manufactured articles, which could be exchanged in Central Europe for grain, and which would at the same time provide a certain amount of employment for our own workers.

A joint demonstration has been inaugurated by the Women's International League, and will be held at the Kingsway Hall, London, W.C., on Wednesday, March 29th, at 8 P.M., Mrs. H. M. Swanwick in the chair. The object is to convince the Government that organised women are keenly desirous that adequate aid should be granted to famine-stricken Russia from national funds.

STATE REGISTRATION OF NURSES: THE NEW RULES FOR REGISTRATION.

THERE are two important reasons why there should be a strong State register of nurses at this particular juncture. First, the nurses on the register will form the electorate of the first elected Nursing Council in October of this year, and this electorate, to make the Council of real value, must include the women with the best qualifications. Secondly, it is essential that there should be sufficient money provided from the fees of the nurses to meet the heavy expenses entailed in establishing the machinery of State registration. Two new rules have been suggested, and are provisionally in force, to speed up registration in the short time elapsing before the first election. And here Sir Alfred Mond's reply to the protest against those rules made by a section of nurses confirms the opinion that the modifications are necessary for progress. Under existing rules each applicant for registration has to forward her original certificate for inspection, a provision which has undoubtedly proved an obstacle to many nurses, who may hesitate to part with the original document, or are unable to produce it.

The first new rule sanctions acceptance of a copy of the certificate, certified by a Justice of the Peace, a barrister, or a solicitor to be a true copy. The rule also provides that the Council may accept a declaration signed by the secretary or other responsible officer of any organised body of nurses recognised by the Council, that on the admission of the applicant to membership the certificate, or a certified copy, was verified by that body. It has also been suggested that speed would be gained if the Registrar, as the responsible Government official, were to list all applicants conforming to the regulations laid down by the Council for admission to the register, this list to be submitted for approval to the Registration Committee, the papers of applicants whose qualifications for registration appeared questionable being reserved for individual scrutiny by the Committee.

The effect of the second rule will be to enact that the committees appointed in the years 1920 and 1921 shall go out of office on the date of the first ordinary meeting of the Council next after the date on which this rule comes into operation, and new committees shall be appointed by the Council at that meeting. Notwithstanding the arguments offered against these new rules by a section of the nursing profession, as instanced by a recent protest meeting of the Registered Nurses' Parliamentary Council, their operation may well be less damaging to the welfare of nurses than the discord and delay which must apparently continue unless the committees are re-constituted.

Few professions in their work of organisation have had so stormy a career as that of the nursing profession, and the General Nursing Council has a magnificent opportunity before it of establishing a firm foundation upon which the nursing profession through its organised societies may build. We hope the work of reconstruction will be allowed to proceed.

COLONIAL HEALTH REPORTS.

Trinidad and Tobago.—The estimated population of the two islands on Dec. 31st, 1920, was 391,279. The white population is chiefly composed of English, French, Spanish, and Portuguese. The large majority of the inhabitants are natives of the West Indies or of African descent, the balance being made up of East Indians, estimated at 132,028, and a small number of Chinese. The birth-rate was 29·85 per 1000 and the death-rate 23·76. The number of deaths of children under 1 year was 2048 and the infantile mortality rate was 174·93 per 1000 births. The death-rates from the principal diseases were: diarrhœa and enteritis, 2·43 per 1000; malaria, 2·22; tuberculosis, 1·29; dysentery, 1·51; enteric fever, 0·76; ankylostomiasis, 0·71. Measures for reducing infantile mortality were continued throughout the year. There was no epidemic in 1920 and the general health conditions were exceptionally good. Enteric fever was prevalent in several districts, and the recognised measures of control, including educational methods and preventive inoculation, were adopted. The Tuberculosis Association continued its valuable work. Anti-malarial measures of a minor nature were carried out in all rural districts. The Central Board of Health is considering a scheme for undertaking major preventive measures in the most malarious districts. The intensive treatment of hookworm disease was continued by the Rockefeller International Board of Health. The Central Board of Health is coöperating by an investigation as to the types of latrines most suitable to the various districts of the colony. Hospital accommodation comprises the Colonial Hospital, Port of Spain, 340 beds; the San Fernando Hospital, 123 beds; the Government District Hospitals at Tobago, Arima, St. Joseph, Tacarigua, Couva, Princes Town, and Cedros, 248 beds; and small temporary hospitals at Chaguanas, Sangre Grande, Mayaro, and Toco. The hospitals for yaws patients at St. Augustine (200 beds) and Tobago (60 beds) were closed during the year, the successful treatment of this disease by salvarsan rendering them no longer necessary.

Nyasaland.—The European population is approximately 1000 males and 500 females; the native population 545,000 males and 655,000 females; and the Indian population 500 males and 60 females. The health of the Protectorate during the year 1920 was, on the whole, good. There was a marked decline in the returns of cases of small-pox and there has been no recrudescence of influenza in epidemic form, though catarrhal affections reported from one or two areas may have been of this nature. The admission rates for venereal diseases exhibit a steady rise as compared with previous years, and steps are being taken to deal with this class of complaints by the opening of special hospitals for their reception and treatment. Diphtheria has been very rare in past years, but five cases with one death were reported during 1920. Of insect-borne diseases, trypanosomiasis is endemic in the Protectorate, though almost entirely confined to the Dowa and Marimba districts. Tick fever, fairly prevalent in the Lake districts, is rarely met with in other areas. There were no cases of plague during the year and it is hoped that the measures which have been adopted will result in the stamping out of the disease. More than 3,000,000 rats have been destroyed during the past four years in the affected area, which is a small one at the north end of the lake. Leprosy, though not common, appears to be widely spread, and attention is being directed to the segregation of cases in their own villages. As regards Europeans malaria is the principal ailment, and blackwater cases occur; but gastro-intestinal disorders and muscular rheumatism are fairly prevalent. There were only two cases of enteric fever and one of paratyphoid reported during the year. Dysentery is not common; that which occurs is chiefly of the bacillary type. The Government maintains at Zomba, Blantyre, and Fort Johnston hospitals for the reception of European patients, at which midwifery cases are taken. There are also hospitals at some stations for treatment of natives. Much medical work in the Protectorate is performed by various mission bodies. Europeans in Nyasaland proceed frequently—on an average about once in three years—to Europe or to a temperate climate elsewhere for the purpose of recuperating health. Natives leave the Protectorate in large numbers for South Africa to get more highly paid work.

Perplexed.—No reference book on the subject exists in a recent edition. The Medical Acts are set out in full in the Medical Register.